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Sievers' Law and the
History of Semivowel Syllabicity
in Indo-European and Ancient Greek

P. J. Barber

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P. J. BARBER

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For Kathy and Dominic

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List of Abbreviations

acc.	accusative
Aeol.	Aeolic
Alb.	Albanian
aor.	aorist
Arc.	Arcadian
Arg.	Argolic
Arm.	Armenian
Att.	Attic
AV	Atharvaveda
Av.	Avestan
AVP	Atharvaveda Paippalāda
Boeot.	Boeotian
Bret.	Breton
C	Consonant
CEG	see References
CLuw.	Cuneiform Luwian
Cret.	Cretan
CRuss.	Classical Russian
CS	Church Slavonic
Cypr.	Cypriot
dat.	dative
Dor.	Doric
El.	Elean
Eng.	English
ep.	epic
EWaia	see References
fem.	feminine
fut.	future
GAv.	Gathic Avestan
gen.	genitive
Germ.	Germanic
Gk	Greek
Goth.	Gothic
H	heavy laryngeal
Hell.	Hellenistic
Hitt.	Hittite
I	Semivowel
IC	see References
IE	Indo-European
IG	see References
IIr.	Indo-Iranian
indic.	indicative

Ion.	Ionic
L	light
Lac.	Laconian
Lat.	Latin
Latv.	Latvian
Lesb.	Lesbian
Lith.	Lithuanian
LIV ²	see References
Locr.	Locrian
masc.	masculine
Meg.	Megarian
MHG	Middle High German
MIr.	Middle Irish
MLG	Middle Low German
MMP	Manichaean Middle Persian
MS	Maitrāyaṇī Saṃhitā
Myc.	Mycenaean
n.	neuter
NHG	New High German
nom.	nominative
Nu	nucleus
NWFris.	New West Frisian
OAv.	Old Avestan
OBret.	Old Breton
OCS	Old Church Slavonic
OE	Old English
OHG	Old High German
OIr.	Old Irish
ON	Old Norse
On	onset
OP	Old Persian
OPhr.	Old Phrygian
OSax.	Old Saxon
Osc.	Oscan
Oss.	Ossetic
OT	Optimality Theory
pl.	plural
ppl	participle
Praen.	Praenestine Latin
PToch.	Proto-Tocharian
R	Resonant
Ri	rime
Russ.	Russian
RV	Rigveda
ŚB	Śatapatha-Brāhmaṇa
SCr.	Serbo-Croat
SEG	see References
sg.	singular
Skt	Sanskrit

T	obstruent
TB	Taittirīya-Brāhmaṇa
Thess.	Thessalian
Toch.A/B	Tocharian A/B
trag.	tragic
Umbr.	Umbrian
V	Vowel
Ved.	Vedic
voc.	vocative
YAv.	Young Avestan
σ	syllable

Introduction

This book is an investigation into the ways in which semivowels were realized in Indo-European and in early Greek. More specifically, it examines the extent to which Indo-European **i* and **y* were independent phonemes, in what respects their distribution was predictable, and how this situation changed as Indo-European developed into Greek. As we shall see, these areas of enquiry have significant morphological as well as phonological components; several important inherited suffixes had variant forms, some with **i* and some with **y*. Since these variants went on to have their own independent histories within Greek, we need to disentangle a great deal of morphological and phonological innovation in order to establish a true picture of what was originally inherited.

The phonemic and distributional properties of **i* and **y* are not isolated problems, and we cannot treat them as such. One of the outstanding issues in Indo-European phonology concerns the status of the ‘resonants’ more generally.¹ Brugmann (1897:92ff.) established that we should reconstruct for Indo-European two sets of sounds: syllabic **i*, **u*, **r*, **l*, **m*, and **n* and non-syllabic **y*, **w*, **r*, **l*, **m*, and **n*.² It has long been recognized that these existed in at least a partially complementary distribution. In postvocalic and intervocalic position, we can only reconstruct non-syllabic resonants; between consonants, on the other hand, syllabic resonants must be reconstructed, e.g.

IE **deyk-* ‘point out’ > Gk δείκ-νυμι and Old Lat. *deic-ō*,³

IE **treyes* ‘three’ > Ved. *tráyas* and Lat. *trēs*;

¹ Finding an appropriate term to exclusively characterize the syllabic and non-syllabic alternants of Indo-European **y*, **w*, **r*, **l*, **m*, and **n* presents some problems. In phonetic terms non-syllabic [j], [w], [ɹ], and [l] may be characterized as *approximants* (see, for example, Ladefoged 1993:64–5, 172). However, the nasal stops [ŋ] and [m] are not approximants. Edgerton (1943:83 n. 6) calls all the sounds in question ‘semivowels’; Szemerényi (1990:107) favours the term ‘sonants’. Sometimes they are referred to as ‘sonorants’, but technically speaking in phonology this term usually designates everything that is not an obstruent. Seebold (1972:15) suggests the term ‘Halblaute’. There does not appear to be a very natural way of grouping these sounds by an exclusive set of shared phonological features. It may be that attempts to treat all of these sounds as being parallel in every circumstance are mistaken. I use the term ‘resonants’ to describe the syllabic and non-syllabic alternants of **y*, **w*, **r*, **l*, **m*, and **n*, since this is fairly common practice in philological works, though we should recognize that ‘resonant’ is often used as a term analogous to ‘sonorant’ by phoneticians. I use the terms ‘semivowel’, ‘liquid’, and ‘nasal’ to pick out the subsets {**y*, **w*}, {**r*, **l*}, and {**m*, **n*} respectively.

² For typographical convenience, I use *y* and *w* to represent *i̯* and *u̯*.

³ The digraphs <ει> and <ει> in Greek and Latin respectively ultimately reflect diphthongs in these cases. The front high segment in the diphthong is non-syllabic, as opposed to being a vowel in hiatus.

IE **k^wid* ‘something’ > Ved. *cit* and Lat. *quid*.

However, in post-consonantal prevocalic position there appears to be a split. We find the reflexes of both syllabic and non-syllabic resonants in the daughter languages, e.g.

Ved. *már̥tiya-* ‘mortal’:⁴ cf. *áva-* ‘coming from sheep’;

Gk ἄγιος ‘holy’: cf. ἄζομαι ‘stand in awe of’ < **hag-yo-mai*.

Such alternation raises some immediate questions concerning the structure of the Indo-European phonological system. It becomes pertinent to ask whether syllabic and non-syllabic resonants were ever contrastive in phonological terms. It is conceivable, for example, that they were contrastive in only a very limited range of environments.⁵ Alternatively, it might be possible to establish rules governing their distribution in all environments. It needs to be borne in mind that there is no particular reason to suppose that all resonants originally behaved in the same way; it might prove necessary to treat them separately. The investigation of the alternation of syllabic and non-syllabic resonants has the potential to affect considerably the way in which we reconstruct the phonological system of Indo-European and the ways we think syllable structure might have interacted with the phonology.

Eduard Sievers (1878:129) proposed rule-governed alternation between post-consonantal prevocalic **i* and **y* in Proto-Germanic, in order to unify various superficially distinct inflectional classes in Gothic. This alternation seemed to correspond to a similar phenomenon in Vedic Sanskrit:

unbetontes (nicht svaritiertes) *i* oder *u* vor einem vocal ist consonant nach kurzer, vocal nach langer silbe ohne rücksicht auf die sonstige accentlage des wortes. (Sievers 1878:129)⁶

⁴ Syllabic *i* is usually represented with signs for non-syllabic *y* in this position in the R̥gveda. The syllabic reading is restored on metrical grounds: see §2.3.1 and Arnold (1905:81–107). It is widely accepted that, in phonetic terms, we should assume [i_y] and [u_w] before a vowel rather than simply [i] or [u]: see, for example, Osthoff (1881:397ff.) and Wackernagel (1896:203). In Gothic this assumption receives historical support: new sequences of prevocalic [i_y] < **-ey-* received an identical treatment to inherited prevocalic syllabic **i* (see §2.2.5.2). In Classical Sanskrit prevocalic *-uv-* (< **-uw-*) is orthographically represented as such in class V verbs such as *ás-nuv-anti*. Even in Vedic, *iy* was sometimes represented in the orthography, e.g. <*kriyate*>.

We will denote this subphonemic transitional glide, where appropriate, in reconstructed forms and sequences, since it seems well justified on comparative grounds, and, through reanalysis, it played a role in the history of certain daughter languages. However, I will refer to prevocalic syllabic semivowels themselves simply as **i* and **u*, rather than **iy* and **uw* (as some authors prefer). I feel that the latter practice puts on one level, and allows for the confusion of, two rather separate issues. One of the main points of debate is whether the contrast of syllabic and non-syllabic semivowels is phonemic. The existence and originally subphonemic status of the transitional glides **y* and **w*, on the other hand, are not in doubt. I prefer to keep the first issue in focus by means of the orthography.

⁵ Goldsmith (1996:10–13) recognizes a cline between contrastive segments at one end of the scale and allophones in a complementary distribution at the other. Various possibilities exist in between. In his ‘just barely contrastive’ category, segments lie in a near complementary distribution and exhibit contrasts only in limited environments. He gives the example of the irreducible but limited contrast between tense [A] and lax [æ] in some eastern dialects of American English (see e.g. Labov 1981, Kiparsky 1996:648ff.).

⁶ We should note that Sievers clearly intended this statement to apply only to the distribution of *post-consonantal* semivowels. The limitation of his statement to unaccented *i* and *u* turns out to be unnecessary, since it goes without saying that an accented semivowel cannot be non-syllabic.

According to Sievers' Law, the syllabic and non-syllabic alternants stood in a fully complementary distribution; the realization of post-consonantal prevocalic **i* or **y* in Germanic, and that of **i* or **y* and **u* or **w* in Vedic, was determined by the *weight* of the preceding phonological sequence. The theory predicts that we should find non-syllabic **y* after a so-called 'light sequence', which consists of a short vowel followed by a single consonant (i.e. **-ṼCyV-*).⁷ But after a 'heavy sequence', such as a number of consecutive consonants, we should find syllabic **i* (i.e. **-CCiV-*). We should also find syllabic **i* after a long vowel followed by one or more consonants (i.e. **-ṼCiV-*). In the same way, we should find non-syllabic **w* after a light sequence (i.e. **-ṼCwV-*), but syllabic **u* after heavy sequences (i.e. **-CCuwV-* and **-ṼCuwV-*).

Sievers' Law has attracted an enormous amount of scholarly attention since its first formulation, and attempts have been made to find traces of these alternations in many Indo-European languages.⁸ If Indo-European itself had such rule-governed syllabicity alternations, and if Greek inherited such a system, then this would clearly have consequences for the ways in which we should understand the early historical phonology of Greek. Similarly, it may be that the Greek evidence can cast a clearer light on the Indo-European situation. As we shall see, the testimony of Germanic and Indo-Iranian languages is not in agreement on many points of detail. Furthermore, their evidence has been interpreted in many different ways by successive generations of scholars. It is important to see how the Greek data relate to the various competing theories.

Sievers' original proposals have frequently been reformulated and sometimes heavily modified. From an early stage their scope was steadily extended. Sievers' Law was soon explicitly redefined for Indo-European and generalized so as to apply to all resonants.⁹ Many scholars came to believe that the law not only applied word internally, but also word initially, with the same syllabification rules operating across word boundaries, both in Vedic and in Indo-European.¹⁰ Another influential approach suggested that word-initial alternations might be confined to monosyllables,¹¹ and in a more general theory of word-initial and word-internal phenomena it has been posited that alternation only took place in the final syllable

⁷ I avoid the infelicitous traditional terminology *light* or *heavy syllable* (as used by Sievers) when referring to sequences of segments preceding the semivowels involved in these alternations. Instead I refer to *light* or *heavy sequences* (cf. Beekes 1976:89); a so-called 'light syllable' from the point of view of Sievers' Law is actually a *heavy* syllable for the purposes of scansion: the *light sequence* in **ṼCyV* results in a *heavy* syllable **ṼC.yV* (*V* = vowel, *C* = consonant, full stop = syllable boundary). So it seems better not to presuppose the syllable structure of these sequences in our use of terminology. For the use of the terms 'light' and 'heavy' in these contexts, see also Mayrhofer (1986:165). On the general problem of defining 'weight', see Gordon (2006).

⁸ On the testimony of other Indo-European languages, see §2.4. It would be a considerable task to give even an overview of what has been written on the subject of Sievers' Law. Here I intend to give only an impression of the development of the main ideas in the field. Fortunately, much of the historical linguistic literature has already been discussed at length in other studies. Seebold (1972:25–175) provides an excellent review of earlier secondary literature. Horowitz (1974:11–38) is also a useful resource. Collinge (1985:159–74) provides some more up-to-date bibliography, while Edgerton's (1934) review of early discussions is still valuable. Mayrhofer (1986:164–7) may be consulted for a sober overview of the Indo-European position more or less as it still stands.

⁹ See e.g. Osthoff (1884:404ff.).

¹⁰ See Edgerton (1934, 1943, 1962) and §2.7.1.

¹¹ That is, forms which were monosyllabic when the initial cluster contained a non-syllabic resonant like the Vedic alternants *dyaús/diyaús*. See Lindeman (1965) and §2.7.2.

of the word; word-initial alternations in monosyllables merely constituted a special case of the more general rule, because in a monosyllable the last syllable and the first syllable are one and the same.¹²

None of these modifications to Sievers' Law has achieved general acceptance. Subsequent investigations have shown that alternation in the liquids and nasals is not nearly so well established as semivowel alternation word-internally or word-initially.¹³ Theories that posit word-initial alternations face a substantial difficulty when one notes that the distribution of word-initial alternants could simply be an artefact of the metres in which the Rigveda was composed.¹⁴

Even Sievers' original claims for **i*/**y* and **u*/**w* alternation have been partially called into question. Statistical evidence from the Rigveda suggests that we frequently find **i* unexpectedly after a light sequence, and it has been argued that we should think of this law in terms of an avoidance of **y* after a heavy sequence, rather than a complementary distribution of allophones.¹⁵

Ultimately the difficult problem of determining the nature and scope of syllabicity alternations in Indo-European can only be settled by scrutinizing the comparative evidence. Yet the very comparative basis for reconstructing these rule-governed alternations for the parent language is by no means as secure as it is sometimes portrayed. There are inconsistencies in the way in which Sievers' Law functioned in Germanic and Indo-Iranian, and there are diachronic problems which make it difficult to be sure that these phenomena are even genetically related.¹⁶ Sihler (2006:191) has reiterated his (1974–5) view that Sievers' Law itself arose independently in Germanic and Indo-Iranian. Sihler (1974–5) also makes a case for regarding Sievers' Law alternations as a series of suffix-specific phenomena, rather than as the outcomes of more general phonological principles.

Given the difficulties in interpreting the Vedic and Germanic evidence, the testimony of these languages alone can no longer be considered sufficient for reconstructing Sievers' Law alternation for Indo-European, let alone anything more elaborate. The need for another basis of comparison is clear. We will, therefore, examine the evidence for Sievers' Law in ancient Greek, particularly as it relates to the inherited distribution of word-internal **i* and **y*.

There are a few other studies of aspects of the Greek evidence for Sievers' Law, notably Hill (1967), Nagy (1970), Yamashita (1971), Perpillou (1974), and Ruijgh (1975), and very many works which incorporate to one degree or another the assumption that Sievers' Law operated at an early stage in Greek. In the three most extensive studies (Hill, Nagy, and Yamashita), it is a fundamental assumption that Sievers' Law and Edgerton's additional constructs are essentially valid. As a result there is very little engagement with the fundamental question of whether there is sufficient evidence to posit Sievers' Law for early Greek. Counterexamples assume a rather minor role in their discussions and there is a general failure to attempt a comprehensive examination of the evidence. I argue that a different approach is now required, if the Greek evidence is to assume any substantial place in the wider Indo-European argument. There is still a great deal of scope for further work and the benefit of intervening developments may offer us a fresh perspective.

¹² See Schindler (1977:56–65) and §2.7.4. ¹³ See §2.4.3.

¹⁴ See the independent work of Sihler (1969, 1971), Horowitz (1974), and Atkins (1968), and §2.8.2.

¹⁵ See Seebold (1972:340–1) on 'die Anschlußregel', and §2.3.2.

¹⁶ See §2.2.3.1 (pp. 13ff.), §2.2.5, and §2.4.

In my view, counterexamples to the various formulations of possible syllabicity rules are of considerable importance. In principle we may decide that such counterexamples as exist are sufficient to throw doubt on the validity of consistent syllabicity rules in any formulation we might devise. There is a need for a realistic assessment of the evidence in favour of Sievers' Law and the various other potential models of syllabicity distribution. It is possible, for example, that counterexamples to one theory may provide evidence for another.

If we are convinced by a preponderance of the evidence that some version of Sievers' Law operated early in Greek, then counterexamples may also offer us a window on the chronology of the phonological and morphological processes which could have been involved both in the breakdown of such rules in the grammar and in the potential erosion of evidence for those rules surviving in our texts. There has been almost no attempt to examine the various questions of chronology which are inevitably raised in the investigation of semivowel syllabicity alternation in Greek. It is important to consider how early Greek phonological and morphological changes may have interacted with any inherited system of semivowel alternation. If the contrast between **i* and **y* was originally allophonic in nature, then we should ask how and when and why this situation might have changed. If the contrast was phonemic, then we should investigate how this would have altered the prospects of survival for any inherited distributional rules, and, furthermore, how it would have affected the prospects of detecting earlier rule-governed behaviour in the surviving evidence.

Deciding how to construe the kinds of evidence which could help us answer these difficult questions will, naturally, be a delicate task. But it is, therefore, all the more important to engage with potential counterexamples closely, rather than regarding them as aberrations to be explained away.

Before we can examine the evidence offered by ancient Greek, we need to think about the question of resonant syllabicity more generally from a comparative perspective, and in Chapter 2 we will consider evidence chiefly from Gothic and Vedic. In Chapter 3, we will commence our analysis of the Greek evidence. We will argue that a focused study of the syllabicity alternations of the semivowels **i* and **y* is most likely to yield promising results, rather than an attempt to understand the behaviour of all possible resonants. We will argue that the only way to understand properly the contribution of the various classes of Greek evidence is to set the development of the Greek semivowels in a chronological context. In parts II and III we will evaluate the Greek evidence offered by nominal and verbal categories respectively. In the concluding chapter we shall draw together what we can know about the history of semivowel syllabification in Indo-European and ancient Greek from this wider evidential basis.

Part I

Evidence for Sievers' Law and the Possibility of Inheritance

Sievers' Law: Gothic and Vedic

2.1. INTRODUCTION

In this chapter we will look at some of the comparative evidence for rule-governed semivowel syllabicity alternations among resonants. In §2.2 we will consider the behaviour of **i* and **y* word internally in Gothic, taking into account the relative chronology of such rules in Germanic, and their synchronic representation at various stages of prehistory. In §2.3 we will look at the evidence for analogous patterns of syllabicity alternation in Vedic, though, as we shall see, it is necessary to pay close attention to the precise conditions for alternation and what exactly constitutes a 'heavy sequence' for these purposes. In §2.4 we will survey a few of the contributions which other Indo-European languages might be able to make to our understanding of Sievers' Law effects, including a discussion of the behaviour of sequences of successive syllables, the effect of the nature of the stem-final consonant, and whether or not the comparative evidence for alternation among resonants other than semivowels is sufficiently strong. In §2.5 we will consider the arguments for and against comparing Sievers' Law in Germanic and Vedic, and in §2.6 we will look briefly at the potential implications such a reconstructed rule would have for our understanding of syllable structure in Indo-European and its daughters. The rest of the chapter will be concerned with the behaviour of semivowels in word-initial consonant clusters (§2.7–9), giving careful consideration to the metrical evidence for the proposition that word-initial alternations were confined to potentially monosyllabic forms, and situating these observations within the context of the formulaic language in which the evidence for alternation has been preserved. The evidence for word-initial and word-internal alternation in Germanic and Vedic having been reviewed, the desirability of a *tertium comparationis* will become evident, and in the conclusion of this chapter we will review a few of the more important questions for subsequent discussion.

2.2. EVIDENCE FOR SIEVERS' LAW IN GOTHIC

The reconstruction of rule-governed **i/*y* alternation was prompted by Eduard Sievers' (1878:129) analysis of what had been assumed to be a purely Germanic phenomenon. We will focus on the evidence from Gothic, but there are also significant traces of Sievers' Law in Old Norse and in the West Germanic

Languages.¹ Gothic presents two distinct paradigms in certain verbal and nominal classes. Forms follow one paradigm or the other, depending on their metrical structure. As we shall see, this split indirectly preserves traces of prehistoric **i/*y* alternation.

2.2.1. Alternation in Verbal Forms

These phenomena may be exemplified by the two types of weak class I present tense verbs in *-ja*.² A verb of this class with a monosyllabic stem ending in a sequence *-ȳC* (a 'light' sequence) conjugates as follows:³

1st sg. indic.	<i>bid-ja</i>	'request'
2nd sg. indic.	<i>bid-jis</i>	
3rd sg. indic.	<i>bid-jip</i>	
2nd pl. indic.	<i>bid-jip</i>	

But there is a different result when such a verb's stem ends in a sequence *-ȳC* or *-CC* (heavy sequences):⁴

1st sg. indic.	<i>sōk-ja</i>	'seek'	<i>*warm-ja</i>	'heat, warm'
2nd sg. indic.	<i>*sōk-eis</i>		<i>*warm-eis</i>	
3rd sg. indic.	<i>sōk-eip</i>		<i>warm-eip</i>	
2nd pl. indic.	<i>sōk-eip</i>		<i>*warm-eip</i>	

2.2.2. Explaining these Alternations

Historically, such examples contained the Indo-European verbal suffix **-ye/o-*. Sievers argued that the patterns illustrated above ultimately reflect a Proto-Germanic syllabicity alternation between **y* and **i*. This would give a suffix **-ye/o-* or **-iye/o-* depending on the metrical structure of the preceding sequence.

The 3rd person singular present indicative *bid-jip* 'he requests' derives from a form with the verbal suffix **-ye/o-*, since a 'light' sequence preceded the suffix. On the other hand, *sōk-eip* 'he seeks' and *warm-eip* 'he heats' originally had the disyllabic variant of the verbal suffix **-iye/o-*, since they contain a 'heavy' sequence before the suffix. The 2nd person singular and plural forms in each paradigm exhibit the same weight-governed distinction.

¹ For a summary of the reflexes of Sievers' Law alternants in these other languages, see Seebold (1972:78–89) and Ringe (2006:223–4).

² In Germanic philology, *j* is traditionally used to denote **y*. This does not indicate a general assumption that a phonetic change had occurred (see Ringe 2006:120), though compare the argument of Vennemann (1971:109ff.; 1985) and Murray and Vennemann (1983) that **y* underwent syllable-initial strengthening to a fricative *j*. In reconstructions we will use **y* rather than **j*.

³ Special considerations apply to polysyllabic stems, which have given rise to a number of competing analyses of the synchronic rules governing this alternation. We will postpone discussion of polysyllabic stems in the first instance, but see §§2.2.4 and 2.2.6.

⁴ *<ei>* indicates [i] in all examples in this table. Not all forms of all verbs are actually attested, but we can be confident in these paradigms on the basis of the patterns found in other verbs of this class.

Ultimately *bidjip* is probably derived from $*g^{wh}ed^h\text{-}ye\text{-}ti$,⁵ via a change of $*g^{wh} > b$, Grimm's Law changing $*d^h$ to d , and $*t$ to p , with the loss of the final short vowel and raising of $*e > i$.⁶ On the other hand, *sōkeip* derives from $*sāg\text{-}iyi\text{-}p < *seH_2g\text{-}iye\text{-}ti$,⁷ by the change $*eH_2 > *ā > ō$,⁸ the operation of Grimm's Law changing $*g$ to k and $*t$ to p , the loss of the final short vowel, and raising of $*e > i$. The resulting sequence $*iyi$ undergoes the loss of intervocalic $*y$ and contracts to long $[ī]$, which is written $<ei>$.⁹ The endings of *warm-eip*¹⁰ are susceptible to the same explanations as those of *sōkeip*.

In the other forms of the paradigm where $*y$ or $*i$ stood before a vowel which survived into Gothic, we find only the non-syllabic j , e.g. 1st sg. indic. *sōkja* 'I seek'. There seems to have been a certain stage when every prevocalic $*i$ became j (except in initial syllables, e.g. *fijan/fian* 'hate').¹¹ This change may also have affected Greek loanwords. We find that Gk $-\alpha$ is replaced by Goth. $-ja$, e.g. Gk $\text{Μαρία} \rightarrow$ Goth. *Marja*.¹² In such environments the effects of Sievers' Law are not manifest, since they are obscured by this later development. On the other hand, the sequence $*-iyi\text{-}$ appears to have contracted to $[ī]$ before this change took place. Otherwise, we would have no evidence for Sievers' Law in Gothic, merely uniform $*-ji\text{-}$ in all the relevant forms.

If we look beyond the Gothic evidence, a somewhat more complicated picture of these developments emerges. In West Germanic languages, $*y$ caused gemination of preceding consonants (other than $*r$), and in Old Norse velars underwent gemination when $*y$ followed. We find such gemination in many of the forms

⁵ The etymology of the root of *bidjip* is disputed. But it was certainly 'light', and the ending is not in doubt. If we follow Seebold (1967:104–33; 1970:91–3) we may compare Av. *jaiðieiti*, OIr. *guidid*, Gk $\pi\omicron\theta\epsilon\acute{\iota}$ '(s)he longs for' (intensive), all from the Indo-European root $*g^{wh}ed^h$. This requires us to accept a sound change IE $*g^{wh} >$ Germ. $*b$, though examples of the change are rare, probably owing to the rarity of this sound in Indo-European. See LIV² (217) and Ringe (2006:105–6).

The problematic nature of this sound change emerges when we consider the etymology of *warm-eip* (cf. OE *wearm*, NHG *warm*, etc.). The Indo-European root $*g^{wh}er\text{-}$ 'to burn' (cf. Gk $\vartheta\epsilon\rho\mu\acute{o}\varsigma$, Lat. *formus*, Ved. *gharmá-*, etc.) has been variously connected with NHG *gar*, *brennen*, and *warm*, but we should expect only one of these etymologies to be correct; see Seebold (1980:450–84).

⁶ On the change $*g^{wh} > b\text{-}$, see n. 5; on Grimm's Law, see Ringe (2006:93–102); on the loss of non-high final vowels in polysyllables, Ringe (2006:116–17), for the raising of unstressed $*e > i$ and i -umlaut, Ringe (2006:122–8). The 2nd singular *bidjis* and 2nd plural *bidjip* may be derived from $*g^{wh}ed^h\text{-}ye\text{-}si$ and $*g^{wh}ed^h\text{-}ye\text{-}te$ respectively, via these same sound changes.

⁷ Compare Lat. *sāgiō*, *-ire*, 'find the scent', Hitt. *šākiya-* 'give a sign' (see Melchert 1994:69 and LIV² 520). On the weight of sequences containing laryngeals for Sievers' Law, see §2.3.4.

⁸ See Ringe (2006:72, 146–8).

⁹ On the loss of intervocalic $*y$, see Ringe (2006:134ff.). The 2nd singular ending *-eis* in verbs of this type derives from $*-iyi\text{-}s < *-iye\text{-}si$, via the sound changes already discussed, as does the 2nd plural *sōkeip* $< *sāg\text{-}iyi\text{-}p < *seH_2g\text{-}iye\text{-}te$.

¹⁰ This denominative $*-ye/o\text{-}$ verb seems to be formed from $*warmaz$ 'warm', perhaps from IE $*g^{wh}or\text{-}mó\text{-}$ with the regular change of $*ō$ to $ā$ (see Ringe 2006:145–6 for the Germanic merger of non-high back vowels). But see n. 5 for the problems connected with the treatment of Germanic $*g^{wh}$. The uncertainties as to the ultimate etymology do not substantially affect the value of this example from a purely Germanic perspective.

¹¹ See Ringe (2006:223) and §2.2.6.1.

¹² We can only make cautious use of Greek loanwords because we cannot be sure whether the semivowel in such environments had already devocalized within Greek at the stage when the word was borrowed into Gothic.

where Gothic shows post-consonantal prevocalic *j*, e.g. OE *biddaþ*, OHG *bittent* beside Gothic *bidjand* < **g^{wh}ed^hyonti*; OE *hebbað*, OHG *heffent* beside Gothic *haffjand* < **kH₂pyonti*.

However, in the crucial environment where Gothic shows a post-consonantal *j* before an *i*-vowel, and Sievers' Law effects can be observed, the West Germanic evidence presents an unexpected complication: there is a lack of gemination. Where Gothic has *bidjip*, OHG has *bitit*. Where Gothic has *haffjip*, OHG has *hefit*. It seems that, at least in West Germanic, **y* before **i* was lost. It is possible that this loss goes back even further to pre-Proto-Germanic (see Ringe 2006:130, 224). If this was the case, then the Gothic forms *bidjip*, *haffjip*, etc. would actually be analogical replacements for Proto-Germanic **bidip*, **hafip*, etc. The **y* in Gothic could have been generalized from forms elsewhere in the paradigm, such as 3rd plurals like **bidyand* etc.—forms where Sievers' Law effects did not ultimately survive owing to subsequent sound changes (see above).

The implications of such an analysis are significant for any account of Sievers' Law, because it would seem to suggest that all of our Gothic evidence for forms with light stems could well be analogical in nature and based on forms where Sievers' Law ultimately ceased to apply. At first sight this is alarming. But insofar as we can still detect a contrast between Proto-Germanic forms with inherited **-ye-* and forms with inherited **-iye-* > **-iyi-* > **-ī-*, the situation would not necessarily be affected to a great extent. At the time when any such putative analogical spread of **y* occurred, a form such as **bidip* would have restored **y* from forms such as **bidyand*, while heavy stemmed forms such as **sōkīþ* did *not* introduce **y*, perhaps because forms such as **sōkyand* (< **sōkiyand*) had not yet acquired post-consonantal **y*. This contrast in the development of these paradigms could still reflect (albeit indirectly) the original contrast between **-iye-* and **-ye-*.

2.2.3. Sievers' Law in Nominal Stems

We find a parallel alternation among the *-ja-* nouns.¹³ When the stem ends in a light sequence, it declines as follows:¹⁴

nom. sg.	<i>har-jis</i>	'army'
acc. sg.	<i>har-i</i>	
gen. sg.	<i>har-jis</i>	
dat. sg.	<i>har-ja</i>	

When the noun's stem ends in a heavy sequence, it declines differently:¹⁵

nom. sg.	<i>hāird-eis</i>	'herdsman'
acc. sg.	<i>hāird-i</i>	
gen. sg.	<i>hāird-eis</i>	
dat. sg.	<i>hāird-ja</i>	

¹³ Analogous patterns of alternation can be seen in the two types of *ja*-stem adjectives, but I refrain from giving examples here. The substantives suffice to show the relevant alternations.

¹⁴ Special considerations apply to polysyllabic stems: see §§2.2.4 and 2.2.6.

¹⁵ <*ei*> indicates [i] in all examples.

We can derive the different genitive singular forms without much difficulty. Genitive singular *har-ji-s* 'army' appears to arise directly from **kor-ye-so* (cf. Gk *χορῶνος*, Lith. *kārias*, and Mlr. *cuire*) through Grimm's Law changing **k* to *h*, the change of **o* to *a*, the loss of a final short vowel, and the raising of **e* to *i*. If we believe that Proto-Germanic **y* was lost before **i* (see §2.2.2), then we would have to suppose that *j* was generalized from other parts of the paradigm such as the dative singular or the forms of the plural.

On the other hand, genitive singular *haird-ei-s* 'shepherd' derives from **herd-iyi-s* < **kerd^h-iye-so* (cf. OHG *herta* and CRuss. *čereda*) through Grimm's Law, retention of the root **e* before *r* in a stressed syllable (written <*ai*>),¹⁶ loss of a final short vowel, raising of the thematic vowel **e* > *i*, loss of **y* between two like vowels (**-iyi-*), and the contraction of the outcome into long [*i*], written <*ei*>. There was no spread of *j* from other forms in the paradigm.

We can be confident that the dative singular and plural forms of these words also obeyed Sievers' Law at an early stage, but the devocalization of prevocalic **i* eliminated any possible evidence of the fact in Gothic.

2.2.3.1. Problems in Nominal Stems

The origin of the nominative singular forms is altogether more difficult to explain. Almost everybody agrees that we should reconstruct a form **kor-yo-s*, but it is difficult to see how this could result in the attested *har-ji-s*. Similarly, it is not entirely clear that we should expect *haird-ei-s* to derive from the inherited nominative singular **kerd^h-iyo-s*.¹⁷

The origin of the [*i*] in nom. sg. *har-ji-s* is far from clear. It cannot be the thematic vowel as Sievers (1878:127) originally suggested. Leaving aside the issue of the vowel quality (which Barrack 1998:103–4 thinks could be reconciled), we would expect a short vowel in the final syllable to be lost before [*s*]. The resulting semivowel between two consonants might reasonably be expected to vocalize, i.e. **kor-yo-s* > **haris*.

On the other hand, it has generally been assumed that *haird-ei-s* could be a legitimate reflex of **kerd^h-iy-s* < **kerd^h-iyo-s*. But we should note that such a development presupposes that the once automatic prevocalic glide **y* in a sequence **iyV* must already have achieved some measure of independent phonemic status in order for it to result in a long vowel in *haird-ei-s* (whatever the phonological mechanism might have been). Otherwise we might have expected a nominative singular **hairdis*, with the inter-consonantal variant *i* being substituted for **iy*.

Seebold (1972:73–4) argued that we can understand the emergence of a nominative *har-ji-s*, if we reconstruct a uniform suffix **-iyo-s* for heavy and light stems alike.¹⁸ A nominative singular form **kor-iyo-s* would lose a short vowel in a final syllable before **s*, giving **har-iy-s*. He thought that this would automatically re-syllabify as *har-ji-s*. The inherited **y* preceded **s* and so became syllabic [*i*]; this was the appropriate pre-consonantal alternant in Gothic.¹⁹ The first semivowel

¹⁶ 'Retention' is perhaps a simplification; see Ringe (2006:122).

¹⁷ Compare the Runic Norse nom. sg. *-ijaz*; see Krause (1971:117).

¹⁸ This reconstruction is incompatible with the predictions of Sievers' Law: the disyllabic suffix follows a light sequence. But Seebold argues convincingly in another context that such sequences were possible at an early stage (see §2.3.2).

¹⁹ See Moulton (1948:82–3).

*i would develop into [j] before this new syllabic [i], since this would be the appropriate Gothic prevocalic alternant.

On the other hand, a heavy stemmed example such as *herd-ij-s < *kerd^h-iyo-s would resyllabify rather differently. Once again, Seebold supposed that [j] would become syllabic before a consonant, i.e. *herd-ij-s > *herd-ii-s. Because a heavy sequence followed by [j] was impossible under his analysis, just as it was under Sievers' Law, this *herd-ii-s could not become *herd-ji-s (in the way in which *har-ij-s is supposed to have become har-ji-s), and so the sequence *-ii- survives long enough to undergo contraction, giving *hairdeis*.

At first sight, Seebold's solution appears to suffer from a slightly worrying ambivalence concerning the phonemic status of [i], [j], and the sequence [ij] at the various developmental stages. However, the chronology can work. The perception of [ij] as a sequence must *post-date* the raising of *e* to *i*. This raising created new [ij] sequences which fell into Sievers' Law alternations with [j] in accordance with their environment (see §2.2.5.2). On the other hand, [ij] must be considered a sequence of independent segments after the loss of short vowels in final syllables, so that we can understand the failure to substitute simple [i] between consonants in the putative forms *har-ij-s and *herd-ij-s. Although Seebold needs [ij] to be perceived as a sequence after this stage, the interchange of [i] and [j] still needs to be sufficiently automatic that *har-ij-s can resyllabify as har-ji-s and *haird-ij-s can resyllabify as *haird-ii-s (> haird-ei-s) to satisfy the requirements of the new surrounding phonological environment.

If Seebold's approach is correct, then the two types of *ja*-stem nouns are to be explained as a Germanic innovation, albeit one which crucially relies on a potentially inherited constraint preventing [j] after a heavy sequence.

It may be far simpler to regard these nominative singulars as analogical formations: see e.g. Kaufmann (1886:539) and Brugmann (1886:517–18). We could suppose that the nominative was modelled directly on the genitive:

haird-ei-s (gen.) : *haird-ei-s* (nom.) :: *har-ji-s* (gen.) : X,
where X = *har-ji-s* (nom.).

However, the elimination of the nominative/genitive contrast is, on the face of it, rather surprising.²⁰ The decisive factor in favour of creating nominative *harjis* may have been the prevalence of *j* elsewhere in the paradigm. We find *j* followed by a vowel in the genitive and dative singular and throughout the plural. Perhaps the simplest explanation is to suppose that **y* spread throughout the paradigm.²¹ Once again, this suggests that our evidence for Sievers' Law alternation in the light-stemmed forms may be analogical in nature. But, once again, the important point to notice is the *contrast* between the two paradigms, which is ultimately attributable to the original weight-conditioned contrast between post-consonantal **iyV* and **yV*.

²⁰ Kiparsky (2000), working in the framework of Optimality Theory, also treats *harjis* as analogical. He argues that the replacement of the expected **haris* can be explained by appealing to wider tendencies in the lexicon affecting underlying morpheme structure. The outcome *harjis* constitutes the optimal solution to a number of ranked phonological and morphological constraints.

²¹ As we noted above (pp. 12–13), if we accept the Proto-Germanic change **j* > Ø/_i, then the gen. sg. *har-ji-s* is also the result of such paradigmatic levelling of *j*.

2.2.4. Gothic Exceptions

The remarkably regular synchronic alternations of Gothic have inspired a great deal of work in phonological theory. However, attempts at purely phonological explanations of these phenomena have sometimes struggled to take into account a number of systematic exceptions to Sievers' Law in Gothic.

The genitive singular of neuter *ja*-stem nouns usually ends in *-jis* regardless of the weight of the preceding sequence; for example, we find *arb-jis* rather than **arb-eis* beside nominative neuter singular *arb-i* 'heritage'. This seems to be an innovation; in a few cases we find the expected Sievers' Law alternant side by side with its replacement, e.g. beside nom. sg. *andbaht-i* 'service', we find the (presumably) new gen. sg. *andbaht-jis* and the expected *andbaht-eis*.

Substantival derivatives in *-jan-* exhibit 'light stem' genitive singular forms, regardless of their weight: e.g. gen. sg. *fisk-jin-s* 'fisherman' instead of the expected **fisk-ein-s*. The 2nd sg. imperative of *-ja* verbs is consistently *-ei*. For various other possible exceptions, see Seebold (1972:74–8).²²

We find a coherent class of counterexamples to Sievers' Law among forms with polysyllabic stems. Prokosch (1939:134) noted that in Germanic a sequence of syllables can be treated in an identical fashion to a heavy sequence in a number of metrical contexts; this observation applies to Sievers' Law: e.g. *ragineis* 'adviser' seems to require us to reconstruct the disyllabic **-iye/o-* suffix, even though the sequence immediately preceding the semivowel is light. This phenomenon could ultimately be analogical in nature, perhaps starting from polysyllabic stems which happened to end in a heavy sequence, such as *sipōneis* 'disciple'.²³ However, this pattern has been argued to have some parallels in Latin (see §2.4.1), and we should also consider the possibility that the phenomenon might have been inherited.

There are, to my knowledge, no surviving inherited lexical items with an appropriate structure to trigger this condition: all the examples are peculiar to Germanic. Therefore, it is difficult to know whether the rules governing polysyllabic stems are an entirely Germanic innovation, or a direct consequence of the way in which some Indo-European rule functioned synchronically, or was extended historically.

However, from a synchronic point of view, the evidence from polysyllabic forms has been taken to indicate that Sievers' Law in Gothic is best analysed as a foot-based rather than a syllable-based phenomenon (see further §2.2.6).

2.2.5. Diachronic Problems

The proposition that Sievers' Law is an extremely ancient phenomenon, or even of Indo-European antiquity, encounters a serious problem when we look more closely at the question of chronology. Some examples conform with Sievers' Law

²² These exceptions have been considered in the context of Optimality Theory by Kiparsky (2000). He concludes that when viewed from the wider perspective of the organization of the lexicon through morphological constraints, these may not be exceptions at all.

²³ On synchronic approaches to Prokosch's Law, see §2.2.6.

in Gothic, but the weight of the sequence preceding post-consonantal prevocalic **i/*y* changed during the history of Germanic and reflects the outcome of purely Germanic sound changes; others comply with Sievers' Law in Gothic but only acquired the appropriate phonological structure to fall within the scope of the rule *within Germanic*. This gives the impression that these Sievers' Law effects are in fact comparatively late developments.

2.2.5.1. New Heavy Sequences

The verb *waúrkeiþ* 'he works' < **wurk-iyi-þ* < **wrg-ye-ti* (cf. Myc. *wo-ze*, YAv. *vərəziieiti*) shows an interesting treatment. The original Indo-European *light* sequence presented by this form is treated as a *heavy* sequence for the purposes of Sievers' Law in Gothic. That seems to indicate that Sievers' Law in this example takes effect after the change of **r* to **ur* in Germanic.

Similarly, *þugkeiþ* 'it seems' < **þunk-iyi-þ* (cf. OE *þyncþ*) behaves as a verb with a heavy stem. Yet it appears to be based on the zero grade of a root whose *o*-grade form **tong-* is found in Goth. *þagkjan*, OE *þencan*, OHG *denchen*, and ON *þekkja* 'think, perceive'.²⁴ At an early stage a form **tng-ye-ti* should have behaved as a light-stemmed verb. It only acquired a heavy stem after the Germanic change of **n* to **un*.

Since the provenance of *þugkeiþ* outside Germanic is doubtful, it may only indicate that Sievers' Law continued to be a productive rule in Germanic. The example of *waúrkeiþ*, however, appears to suggest that Sievers' Law may have its origin within Germanic.²⁵

2.2.5.2. The Converse of Sievers' Law

A different diachronic inconsistency can be found in verbs formed with the Indo-European **-eye/o-* suffix. These merged with the *-ja* class, when **e* raised to **i*, e.g. **wort-eye-ti* > **ward-iyi-þ* > (*fra*)-*ward-ei-þ* 'he destroys'. The development of this particular example is unremarkable. But surprisingly **-eye/o-* also yielded forms in *-jiþ* and *-jis* after light stems. In other words, the **-eye/o-* formation merged *completely* with the inherited **-ye/o-* verbs: e.g. causative *lag-jiþ* 'he lays' with its ending from **-eye-ti*.²⁶ This merger must have happened after the stage when **-eye-* > **-iyi-*, with **-iy-* being *devocalized* after a light

²⁴ Without comparative evidence, it is difficult to be certain that *þugkeiþ* was built with the **-ye/o-* suffix rather than the **-eye/o-* suffix (see §2.2.5.2), but Ringe (2006:115, 120) argues that its intransitive semantics make the first possibility seem the most likely.

²⁵ The development of **n* to **un* and **r* to **ur* occur very early in the history of Germanic; at least there do not appear to be any Germanic sound changes that must precede these (see Ringe 2006:81).

²⁶ We can suppose that this form has the suffix **-eye/o-*, since it has causative semantics when compared to the intransitive form without suffixation: *ligan* 'to lie'. Also, it shows *a*-vocalism in the root which can ultimately reflect an inherited *o*-grade. This form itself may be inherited (cf. LIV² 398–9).

sequence, becoming *y. This devocalization has often been called the 'converse of Sievers' Law'.²⁷

So, superficially, it appears that the sound changes responsible for bringing about the Sievers' Law pattern belong to the history of Germanic rather than Indo-European. What is more, forms with an origin in *-eye/o- seem to constitute a *substantial* proportion of the light *ja*-stem verbs. The question is whether these problems, and those discussed in the preceding section, force us to consider Sievers' Law a Germanic innovation, or, alternatively, whether it might be possible to argue that these changes represent the expansion of an existing and perhaps inherited phonological pattern.

Such an argument might be possible if we cease to regard Sievers' Law simply as a sound change which occurred at a single point in time; such a conception is not compatible with the putative reshaping of an inherited form such as *waúrkeiþ*, or the extension of Sievers' Law to new forms as sound change brought them within its remit (e.g. *lag-jip*). If we could plausibly characterize these syllabicity alternations as a set of inherited synchronic rules or constraints operating on syllable structure, or higher metrical structures, then it is conceivable that such rules could persist and continue to function in the surface phonology of Proto-Germanic, constraining the output of subsequent sound changes.

In the next section we will consider the form which such putative inherited rules may have taken, but it is worth noting that nothing in Germanic forces us to make this argument; Sievers' Law is clearly a synchronic rule at a certain stage in Germanic, but if we accept the possibility of ongoing constraints, then there is no telling how old it is. The only possible motivation for attributing it to Indo-European is external, and lies in the comparative evidence which we will consider later in this chapter and indeed throughout this investigation.

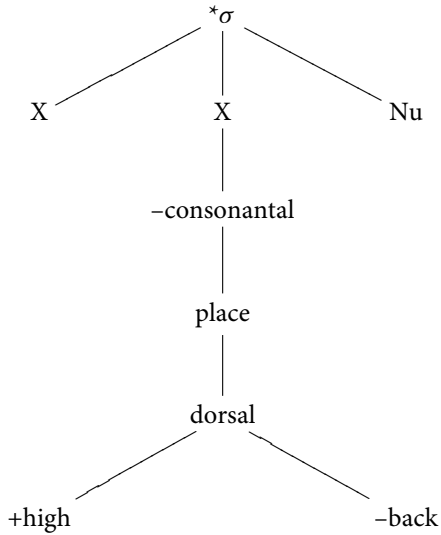
2.2.6. Synchronic Rules in Germanic

Various sets of synchronic rules have been proposed to account for Sievers' Law in Gothic, and these present no obvious problems if adapted so as to apply in Proto-Germanic also.

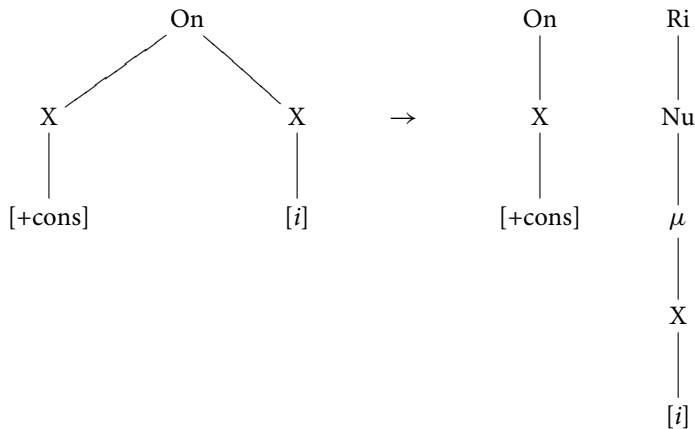
Typically, Sievers' Law has been analysed as involving the vocalization of [j] to [i] when preceded by a tautosyllabic consonant in the onset of a syllable. This has been formalized in various ways. Kiparsky (2000; cf. 1998) sets up an undominated onset constraint *Cj (where * in Optimality Theory denotes a constraint and *not* a reconstructed form).²⁸ Calabrese (1994), on the other hand, gives a filter:

²⁷ See Edgerton (1934:237–41; 1943:87ff.). However, cf. Seebold (1972:43) on the inappropriate nature of this term; Sievers himself saw syllabic semivowels as primary, and already thought of the semivowel alternations that he had described in terms of the selective devocalization of an original uniformly syllabic precursor.

²⁸ It is interesting to note that such a constraint was supposed early on by Sommer (1914) in the context of Sievers' Law effects in Lithuanian. He argued that *y must appear in syllable-initial position.



Again * here denotes a constraint and not a reconstruction; X, a slot in the syllable structure, and Nu, a syllable nucleus. Dresher and Lahiri (1991) have a vocalization rule which does a similar job in their theory to Calabrese's filter or Kiparsky's undominated constraint:



where On = onset, Ri = Rime, Nu = nucleus, and X = a slot in the syllable structure. Vennemann (1971:107) also has a rule:²⁹

$$\begin{bmatrix} -\text{cons} \\ +\text{high} \\ -\text{back} \end{bmatrix} \rightarrow [+v\text{oc}]/\$C_1 _ \begin{bmatrix} V \\ +\text{high} \\ -\text{back} \end{bmatrix}$$

where \$ denotes a syllable boundary.

²⁹ Note that this is a preliminary version of the rule which Vennemann ultimately proposes; in the course of the same article he modifies it to account for the behaviour of polysyllabic stems.

The main differences between the various approaches are the mechanisms that ensure that a *Cj*-onset (with consequent vocalization of the semivowel) would be required only when a heavy sequence or a sequence of syllables precedes the semivowel.³⁰ In general the process has been analysed as an interaction between syllabification and metrical structure.

Kiparsky (2000) argues that Gothic words are exhaustively parsed into moraic trochees: left-headed, maximally bimoraic feet.³¹ Sequences that cannot be so parsed are avoided. A word-initial light-heavy sequence is disfavoured since it cannot be exhaustively parsed into moraic trochees; if parsed [L][H] (here square brackets are used to denote feet) the first foot would be too short but in [LH] it would be too long, and hence we find gen. sg. [har].[jis] and not **ha.riis*.³² Because these feet are supposed to be maximally bimoraic, a syllable with more than two moras is avoided (at least non-finally), hence [her].[dii]s and not *[herd][jis]; note that *[her][djis] would also be impossible because of the undominated onset constraint **Cj*-mentioned above. We get [ra.gi][nii]s, since **ra.gin.jis* cannot be exhaustively parsed into moraic trochees and **ra.gi.njis* would violate the **Cj*-constraint.

A different approach is taken by Drescher and Lahiri (1991). They argue that having *Cj*-in the onset is the expected syllabification in all cases, but this is then operated on by the vocalization rule mentioned above, which produces an extra syllable. The challenge is then to explain the aberrant behaviour of light (monosyllabic) stems. They introduce a left-headed *Germanic foot* parsed from left to right, whose head is *minimally bimoraic*, in order to account for Sievers' Law, Old English stress, high vowel deletion, and various metrical phenomena. The head of such a foot must dominate two morae, even if this necessitates dominating a mora in the following syllable. In this way a light syllable followed by another syllable will be equivalent to a heavy monosyllable in terms of higher metrical structure (i.e. [miki][liis] and [soo][kiis]). A light monosyllabic stem is distinguished by the fact that the potentially vocalizable onset cluster is in the weak part of the foot (i.e. [na.sjis]). Drescher and Lahiri put forward the argument that any such vocalization would constitute a strengthening of the weak part of the foot, an outcome which they consider to be ruled out on general principles.

This approach is argued against by Halle et al. (1993), since, in their view, the admission of a Germanic foot unnecessarily enriches the foot typology elaborated by Hayes (1980), Hammond (1986), McCarthy and Prince (1986), and Hayes (1987). Instead they posit the following rule:

The syllable onset *Cj* is syllabified *Ci* if preceded—directly or indirectly—by a branching foot.

Higher metrical structure is assigned to words by the projection of asterisks onto a metrical grid. These asterisks are projected by 'the head vowels of syllables *and the immediately following rime segment, if any*' (their italics). They are grouped

³⁰ On the behaviour of polysyllabic stems, see Prokosch (1939:134) and §2.2.4.

³¹ On the terminology, and the foot typology see Hayes (1980, 1987), Hammond (1986), and McCarthy and Prince (1986).

³² Following the conventions established in this field, long vowels are denoted here by a sequence of two like vowels, so *ii* stands for *ī*.

into binary left-headed constituents from left to right. Hence the following representations are obtained:

miki.	ljis	soo.	kjis	na.	sjis
(**	(**	(**	(**	(*	(**

This captures the necessary distinction between monosyllabic stems with a light sequence on the one hand, and heavy sequences and polysyllabic stems on the other. In the examples where there is vocalization of an onset *Cj-* to a syllable *Ci-*, a branching foot precedes it.

It should be evident that these accounts differ substantially in their details, and several other approaches could be adduced, but they all seem to rely, to one degree or another, on the notion that a *Cj-* onset was somehow disfavoured and liable to become *Ci-*. There is some independent evidence pointing in the same direction, though its interpretation is far from straightforward.

2.2.6.1. A Constraint *Cj-?

There might be some evidence from orthographical practices for a constraint against *j* appearing as a non-initial member of a syllable onset. Studies of word breaks at the ends of lines in Gothic manuscripts³³ show that medial clusters of the type *VCRV* are usually broken before the *consonant* and very rarely before the *resonant* (e.g. <fa|dreinai> 'family', <bai|trei> 'bitterness', <ne|þlos> 'needle'). Conversely, clusters involving a second member *j* (*VCjV*) are only rarely broken before the *consonant*: they are usually broken before the *semivowel* (e.g. <wra|kja> 'persecution', <waur|kja> 'work', <tand|jan> 'light', <fra|þjan> 'understand').³⁴ This may give us an indirect indication that the semivowel in such medial clusters is the *sole occupant of the onset*, i.e. *V.Cr* but *VC.jV*.

Furthermore, the putative onset constraint **Cj* does a very good job of predicting the word-initial limitations on consonant clusters in Gothic. We find only the following word-initial clusters before a vowel:

pr, br, tr, dr, kr, gr, fr, þr, hr, wr;
pl, bl, kl, gl, fl, þl, hl, sl, wl;
tw, dw, kw, þw, hw, sw;
kn, hn, sn;
sm, sp, st, sk;
*spr, str, and skr.*³⁵

There are no word-initial complex onsets involving *j* as a non-initial member. This makes perfect sense if there was an onset constraint and it was not phonologically possible in Gothic to parse the first segment of a word as belonging to the coda

³³ See Hechtenberg Collitz (1906), Hermann (1923:287–93), Schulze (1934:483–96), and Frey (1989).

³⁴ These examples are taken from Calabrese (1994:165).

³⁵ This tabular arrangement I adapt from Calabrese (1994:164), but these word-initial consonant-cluster facts have been widely used elsewhere: see Hechtenberg Collitz (1906), Vennemann (1971:107 n. 29), Kiparsky (2000), etc.

of the last syllable in the preceding word (contrast this with the situation in Vedic, §2.6).

We might note that *Cw-* clusters *are* found at the beginning of words,³⁶ and there are *no* Sievers' Law effects involving *w/u* in Gothic (a point developed by Vennemann 1971). This would appear to be a coherent set of facts under a constraint-based theory: Gothic does not have a constraint against **Cw* in the onset, and therefore we also fail to see word-internal syllabicity alternation in the Sievers' Law mould.

But Riad (2004) is sceptical. He argues that the orthographical data need to be treated with caution.³⁷ Word-internally *C+w* is regularly split, e.g. <iz|war> 'your', <waurst|wa> 'worker', just like *C+j*, but there is no constraint on word-initial *Cw-*, e.g. *swein* 'pig', *twaddje* 'second'. Similarly, even though *k+n* are regularly divided in word-breaking contexts, e.g. <taik|neip> 'sign', <swik|nein> 'cleansing', word-initial *kn-* occurs freely, e.g. *kniu* 'knee', *knussjan* 'fall down' (Riad 2004:195–6).

Nevertheless, there is certainly something special about the orthographical treatment of word-internal *j*. Even very complex clusters of consonants are not divided between syllables in the manner we might expect when *j* is involved: e.g. we find <fulhsn|ja> 'secret' (dat. sg.) and <waurstw|ja> 'worker'. The real question then becomes: do we trust the word-breaking facts to give us a true reflection of Gothic syllable division?

Riad (2004) also questions the widespread interpretation of the absence of word-initial **Cj-* clusters, finding it curious that there should be a constraint against initial **Cj-* but not against **Cw-*. He argues (194ff.) that the lack of initial **Cj-* and the lack of Sievers' Law alternations for [*u/w*] word-internally are actually gaps in the data and not true distributional facts.

On the latter point, it is certainly true that there is nothing morphologically parallel to the *har-jis/haīrd-eis* distinction for [*u/w*], and so we cannot be sure how [*w*] would behave under exactly these conditions (Riad 2004:177 esp. n. 4). However, there are perhaps sufficient differences in the distribution of [*u/w*] and [*i/j*] elsewhere to suggest that we should not start with the expectation that the two sets of semivowels will behave in a parallel fashion. This is shown, for example, by forms such as *waūrstwja* 'worker' and *waūrstw* 'work', instead of **waūrstuja* and **waūrstu*, with *w* in positions where Gothic *j* would certainly vocalize to *i* (cf. *weina-triwa* 'wine-tree' not **weina-trjwa*, and *hari* acc. sg. 'army' not **harj*).³⁸ From this point of view it is difficult to be sure that it would not have been possible to infer a constraint against **Cj-* but not **Cw-* in the synchronic grammar of Gothic.

From a rather different perspective it is somewhat mysterious that we do not seem to find clear examples of the outcome of inherited word-initial **CyV-* in Gothic. The usual examples we might expect to see do not seem to have been

³⁶ Examples include *twai* 'two', *þwahan* 'wash', *swikns* 'pure', and *dwals* 'foolish'; see Kiparsky (2000:20).

³⁷ Compare the scepticism of Dresher and Lahiri (1991:269 n. 15).

³⁸ The asymmetries are fully recognized and indeed discussed by Riad (2004:178, 197–8).

inherited: e.g. we do not find a reflex of any relevant part of the **dyew-* paradigm.³⁹ We have a form of the root **k^wyeH₁-* 'rest' (cf. Lat. *quiēs*, OP *šiyātiš*), but only a zero grade in Goth. *lveila* 'time, hour' (cf. OE *hwīl*) < **k^wiH₁-*.

There are various apparently promising examples showing a spelling *CijV-* or *CiV-*, but they always seem to have some other origin than inherited **CyV-*, e.g. Goth. *kīusan* 'test, choose', which, like several similar examples, actually owes its syllabic *i* to the raising of an original **ew* diphthong (< **ġews-*: see LIV² 166–7). There seems to be a potential example of vocalization of **y* to **i* after a word-initial consonant in Goth. *siujan* 'sew' < **syuH-ye/o-* (cf. Lat. *suō*, Ved. *śivyati*, Lith. *siuvù*, *siūtī*), but the use we can make of this example is limited, because it is unclear whether we have a shortening of **-īu-* < **-iHw-* (with the laryngeal in the position suggested by the Vedic evidence) or a vocalization to *-iu-* < **-yū-* < **-yuH-* (see LIV² 545 with n. 5). We find a stem *siju-* in plural forms of the verb 'to be': *sijum/sium* 'we are' and *sijub/siub* 'you (pl.) are'. Although the precise details are unclear, these seem to be re-formed from the subjunctive stem *sijai-*, itself presumably remodelled from an originally alternating paradigm **sijē-/sī-* < **H₁s-yeH₁-/*H₁s-iH₁-*.⁴⁰ It is not clear whether the syllabic *i* in these formations is due to a constraint against **Cj-*, or rather whether the stem is based on the zero-grade forms of the plural, which would have a syllabic semivowel in any event. The forms *fijan/fian* 'hate', and *fjand-* 'enemy' (cf. OHG *fijant*, OE *fēond*) seem to be related to Skt *pīyati* '(s)he insults' and may go back to **piH-*, rather than containing an original **CyV-* sequence (see EWAia II 85, Kluge 1989:208b, and Ringe 2006:257). The form *frijōn* 'to love' is also likely to have contained a laryngeal; cf. Ved. *priyá-* 'dear' < **priHo-* (cf. Goth. *freis*, OHG *frī* 'free', Welsh *rhydd*; see EWAia II 181–2, 189–90). Marchand (1958:75, followed by Calabrese 1994:166 n. 9) suggests that Goth. *kijan-* (participle of *keinan* 'sprout') comes from Indo-European **ġyono-*. But in view of the evidence of the Proto-Balto-Slavonic accentuation in the root syllables of Lith. *pra-žýsti* and Latv. *ziēdu*, we need to explain the presence of a long vowel in both forms. A root-final laryngeal seems the best option, and, therefore, we reconstruct **ġeyH-/ġiH-* (cf. Arm. *cil*, *cil/ceł*; see LIV² 161–2 and Pokorný 1959:355–6). Hence, Goth. *kijan-* does not represent the outcome of original **Cy-* either.

The absence of words with initial **Cj-* remains a puzzle. It may be that a wider survey of the Germanic languages would reveal convincing examples. This gap may be due to chance. But if there truly is a constraint, then its operation is rather odd; insofar as it can be said to have any effect, it is to restrict or filter which forms were inherited from Indo-European, rather than forcing repair strategies such as semivowel vocalization, as it is supposed to word-internally. I am not aware of any other linguistic changes that effectively filter what is inherited in this way, and it would be interesting to know if there were any typological parallels.

In one sense it does not matter from a purely Gothic or indeed Germanic perspective whether this distributional gap was due to a genuine historical constraint

³⁹ Outside Gothic we find OE *Tīw* in 'Tuesday' and ON *Týr*, but this is from **deywós* 'god' (cf. Ved. *devás*, Lat. *deus*), and so does not contain the desired sequence **CyV-*.

⁴⁰ See Ringe (2006:195), who reconstructs **H₁s-ieH₁-* on the assumption that the initial obstruent cluster would call for the syllabic semivowel. On the weight of such clusters for Sievers' Law see §2.3.4, and on word-initial alternations, see §§2.7.2 and 3.9.

or a chance gap in what was inherited, provided that the gap is real, and not an artefact of the poverty of our evidence. If so, then at any stage this distributional peculiarity could have been interpreted synchronically as a constraint. Indeed, there is some evidence that this in fact occurred, since the otherwise general devocalization of prevocalic **i* in Gothic failed to affect **i* in an initial syllable, e.g. *fijan/fian*.

2.2.7. An Inherited Constraint?

When we observed that examples like *waúrkeiþ* seemed to rule out the possibility of ascribing Sievers' Law in Germanic to Indo-European itself, we raised the possibility of construing Sievers' Law as ongoing constraints or persistent rules in the grammar. In one sense the Gothic data are encouraging, in that they provide several competing models for how Sievers' Law can function in a language, and hence several models of rules and constraints that could potentially have been inherited. However, the one element shared by these rule systems, and hence the best candidate for an ongoing constraint or persistent rule, appears, at first sight, to be at odds with some basic facts about the Indo-European lexicon. Unlike Gothic, Indo-European certainly did have words and stems beginning with **Cy-* clusters, e.g. **dyew-* 'sky (god)', **tyeg^w-e/o-* (cf. Gk *σεμνός* 'holy', Skt *tyájati*), **kyew-* (cf. Hom. *σεύω* 'set in motion', *ἔ-σσύμενος* 'eager', Skt *cývate*). This seems, on the face of things, to make the idea of the inheritance and maintenance of a constraint against **Cy-* onsets less than credible.⁴¹

A second concern is the way in which a constraint like this might have been embedded in the rest of the grammar. As we have seen, substantial parts of the theoretical mechanics involved with models of Sievers' Law are motivated by the need to model the Germanic equivalence of a sequence of syllables to a heavy syllable. But as we have already noted, this aspect is unlikely to be an inherited characteristic, on the one hand because there do not seem to be any inherited examples, and on the other because the best comparative evidence for rule-governed semivowel syllabicity alternation does not offer any convincing support (see §2.4.1). Therefore, the implementation of any Indo-European rules might have to be rather different from those supposed for Germanic.

The issue of word-initial consonant clusters in Indo-European might be addressed by means of a technical device, such as a relaxation of the proposed onset constraint word-initially. However, the definition of what is in the onset might also depend on how the syllabification procedure functioned. This is an issue to which we will return after we have considered the evidence of Vedic.

The second issue might be dealt with more straightforwardly. Calabrese (1994:184ff.) assumes that Sievers' Law operated in Indo-European and that it arose entirely out of syllable structure without reference to higher metrical structures. On this view, polysyllabic stems had no special status and did not pattern with heavy sequences. Calabrese reconstructs the same filter for Indo-European

⁴¹ For a synchronic analysis of Sievers' Law in Indo-European which does not depend on an inherited onset constraint of this kind, but on interaction between morphological structure and syllable structure in a stratal OT framework, see Byrd (2010).

as he did for Gothic (see §2.2.6). This interacts with a constraint on the structure of the rime, allowing only two skeletal positions per rime (i.e. a constraint against over-heavy syllables; cf. Seebold 1972:340–1). We must leave aside most details of this proposal here, but it is clear that a light sequence followed by *y, such as *CeC.ye, can be syllabified in a straightforward manner without violating either of these constraints. Heavy sequences followed by *y, on the other hand, must either break the rime constraint, i.e. *CeRC.ye and *CēC.ye, or else violate the constraint against *Cy- onsets, i.e. *CeR.Cye and *Cē.Cye. These violations can be avoided if a syllabic semivowel actually surfaces in such contexts. In this way such constraints can fairly easily model the predictions of Sievers' Law.

For the sake of clarity, we should emphasize that we will not go so far as to ascribe Sievers' Law to Indo-European at this early stage in the argument, since we have yet to consider the evidence offered by any other languages. Germanic languages offer us no reason to project any constraints on syllable structure back beyond Proto-Germanic. However, the knowledge that such ongoing constraints or persistent rules could have operated is liberating, insofar as it allows us to go beyond the evidence of *waúrkeiþ*. We no longer have to assume that Sievers' Law is only of Proto-Germanic antiquity, just on the basis that the rule is sensitive to the purely Germanic heavy sequence generated by the development of syllabic *r̥ > ur. Instead, Sievers' Law constraints could have been ongoing and demanded the vocalization of the semivowel as soon as the new heavy sequence arose.⁴²

Explaining away the other major diachronic inconsistency is less straightforward, but this too has been tackled synchronically in many accounts. Examples of the converse of Sievers' Law, such as *lag-jiþ*, suggested that there was a devocalization of *iy. Calabrese (1994) introduced a foot-boundary-sensitive devocalization rule to explain these examples and also to explain the difference between *sōkja* 'I seek', with the reflex of a non-syllabic semivowel, versus *sōkeis* 'you seek', with the reflex of a syllabic semivowel. The various stipulations are highly theory dependent. I avoid discussing them here, partly for the sake of clarity and partly because, if Seebold is right in his claim that Indo-European had no constraint on the syllabicity of semivowels after a light sequence, then it would not be desirable to project developments that arguably belong only to Germanic back into Indo-European.

The outcome of all this is that we are not *obliged* to say that Sievers' Law was a development of Germanic, though in the end that could still turn out to be the case. Indeed the converse of Sievers' Law, which is certainly Germanic, would be sufficient to produce the patterns we observe, assuming that we do not take it to have been an analogical pattern ultimately owing its existence to an inherited Sievers' Law. In any case, the prospect of comparison is left open, and we can now consider some suspiciously similar patterns of semivowel syllabicity alternation in Vedic.

⁴² A rather different historical development would, of course, have been possible. The constraints could have ceased to apply in a strict and exceptionless fashion and over time they would probably have become confined to certain morphological categories. Sihler (2006:188–9) considers this latter scenario as the overwhelmingly likely one, and in consequence is inclined to regard Sievers' Law in Germanic as an independent Germanic phenomenon.

2.3. THE VEDIC PARALLEL

Sievers (1878:129) did not regard semivowel syllabicity alternations as being limited to the Germanic languages. He noted that Rigvedic *i/y* and *u/v*⁴³ appeared to be distributed in exactly the same way as **i* and **y* in Germanic: we should find *CCiyV* and *VCiyV* versus *VCyV*, and *CCuvV* and *VCuvV* versus *VCvV*.

2.3.1. Metrical Evidence

As we have already noticed (Chapter 1, n. 4), we rarely find forms with syllabic post-consonantal prevocalic semivowels represented in Vedic texts.⁴⁴ Subsequent changes eliminated almost all examples of post-consonantal prevocalic syllabic *i* and *u*. As a result, forms containing such a semivowel are generally represented with signs for non-syllabic *y* and *w*. However, since the Rigveda is composed in syllable-counting metres, it is possible in favourable circumstances to determine when such forms originally had a syllabic or non-syllabic semivowel.

About one third of the Rigveda is composed of dimeter verses. Most of these verses consist of eight syllables. These may be deployed in stanzas of various degrees of complexity. In the first four syllables of each verse (the opening) quantity is fairly free. The last four syllables (the cadence) usually fall into an iambic rhythm: $\sim _ \sim _$.⁴⁵

In a verse such as RV 9.13.6 (*ví vāram ávyam āśávaḥ*), we find the form *ávyam* ‘from sheep’. There is no need to amend the text by introducing a hypothetical **áviyam*; the verse has eight syllables already and the cadence falls into the typical iambic pattern. On the other hand, a verse such as RV 1.36.4d (*yás te dadāša mārtyaḥ*) has only seven syllables and there is no iambic rhythm in the cadence. If we replace the form *mārtyaḥ* ‘mortal’ with *mārtiyaḥ*, then a metrical improvement is produced. The resulting verse has eight syllables, as we would expect in this hymn,⁴⁶ and the cadence has the highly favoured iambic rhythm.

Much of the evidence for Sievers’ Law in the Rigveda is derived from the sum of such metrical analyses. Restoration is not always as straightforward as in the examples presented. Sometimes a metrically aberrant verse is merely made *less* aberrant, and in no sense absolutely regular.⁴⁷

⁴³ The sound represented as *v* seems to have denoted a voiced labiodental spirant by the time of the Prātiśākhya and Pāṇini (see Wackernagel 1896:223). It is not entirely clear whether the change from IE **w* had already taken place before the Vedic period.

⁴⁴ For a summary of the conditions under which *iy* and *uw* were represented in Vedic orthography, see Seebold (1972:21–2).

⁴⁵ On the structure of dimeter verse generally, see Arnold (1905:7–11, 149ff). Heptasyllabic and catalectic verses with seven syllables do exist (see Arnold 1905:161–2 for examples). However, leaving aside a few hymns where they are prevalent, such as RV 10.26, the phenomenon is not terribly common.

⁴⁶ The metrical scheme in this hymn is *Bṛhatī* alternating with *Satobṛhatī* (see Arnold 1905:8, 236); this *Satobṛhatī* stanza consists of four verses, where the second and fourth should have eight syllables: 12 8 | 12 8. There are no catalectic dimeter verses in this hymn.

⁴⁷ For a detailed discussion of the many considerations that need to be taken into account, and many worked examples of metrical restoration involving resonant syllabicity, consult Sihler (2006 *passim*, esp. 13–19).

From a certain perspective, restoration of semivowel syllabicity in accordance with the conditions of Sievers' Law can be regarded as an extremely successful principle of metrical emendation. But, in reality, the inference works in the opposite direction: restoration comes first, governed purely by metre-internal considerations, and Sievers' Law emerges from its results. Indeed, as we shall see, Sievers' Law is not consistently applicable in all morphological categories. Furthermore, even in words where the syllabicity of a semivowel is well established from a preponderance of the evidence, we often find cases of inconsistent syllabification. Nonetheless, Sievers' Law accurately predicts semivowel syllabicity for the R̥gveda in an impressive number of instances, e.g.:

- aryá-* 'lord' and *ávya-* 'from sheep'
(with *-ya-* after a light sequence);⁴⁸
vīr-íya- 'heroism' and *márt-íya-* 'mortal'
(with *-íya* after a heavy sequence);⁴⁹
su-nv-ánti 'press' and *śṛ-ṇ-v-ánti* 'hear'
(with *-v-* after a light sequence);⁵⁰
aś-nuv-ánti 'attain' and *pruṣ-ṇuv-ánti* 'sprinkle'
(with *-uv-* after a heavy sequence).⁵¹

Sometimes our evidence for semivowel syllabicity is not merely inferred metrically, but is of a more direct character. Most of the class V verbs cited above have an ablauting suffix *-no-/-nu-*. The zero-grade suffix is manifested in four different forms: *-nu-*, *-nuv-*, *-nv-*, and *-n-*. The last of these is an innovation which occurs before resonants and does not immediately concern us. The first form occurs only before consonants and exhibits syllabic [u], just as we would expect. The forms *-nuv-* and *-nv-*, on the other hand, occur in the prevocalic environment and are distributed in accordance with Sievers' Law.⁵² This syllabic [uv] is *directly* represented in the Vedic and Classical Sanskrit orthography, unlike [iy] in *márt-íya-* etc.

⁴⁸ *aryá-* (non-syllabic 33 times and syllabic 3 times) and *áv-ya-* (non-syllabic in all 25 occurrences), see Seebold (1972:205).

⁴⁹ *vīr-íya-* (syllabic 78 times and non-syllabic once) and *márt-íya-* (syllabic 260 times and non-syllabic twice), see Seebold (1972:254, 252).

⁵⁰ *su-nv-* (non-syllabic 12 times and syllabic once) and *śṛ-ṇ-v-* (non-syllabic 45 times and syllabic once or possibly twice), see Seebold (1972:194).

⁵¹ *aś-nuv-* (syllabic in all 8 occurrences) and *pruṣ-ṇuv-* (syllabic in its one occurrence), see Seebold (1972:194).

⁵² See e.g. Edgerton (1934:255). Seebold (1972:44–5, 194, 201) noted that, while the evidence of the *-nu-* present stems conforms with Sievers' Law, there are only two usable examples where the stem ends in a long vowel rather than a consonant (the evidence is slim for morphological reasons). These two instances *dhū-nuv-āná-* (RV 6.47.17c) and *dhū-nv-ánt-* 'shake' (RV 9.72.8b) disagree in respect of the relevant semivowel's syllabicity and they cannot be used as evidence for or against Sievers' Law. Seebold argued that we cannot be sure the appearance of syllabic *u* in examples with heavy stems really results from Sievers' Law. It could conceivably be due to the nature of the consonant clusters in such verbs. However, it seems unnecessary to invoke extra rules to explain these facts. If Sievers' Law, or something like it, needs to be posited for a prehistoric stage of Vedic, in order to explain a range of other examples, then forms such as *aś-nuv-ánti* and *pruṣ-ṇuv-ánti* would have been affected by it. Only if we adopt Schindler's model (see §2.7.4) would alternation in the *-nu-* verbs be unexpected.

The factors conditioning Vedic semivowel alternation are sufficiently similar to those in Germanic, and the conditions seem sufficiently arbitrary, that the two phenomena are widely regarded as an Indo-European inheritance.

2.3.2. Vedic Exceptions

Just as the Germanic evidence turns out to be more intricate than a bald statement of Sievers' Law might imply, so too the Vedic data show idiosyncrasies which make direct comparison less than straightforward.

Seebold (1972) conducted a thorough investigation of the Vedic evidence. He concluded that, after a heavy sequence, we should find syllabic **i*, just as Sievers had observed. But after light sequences the situation was more complex.

Seebold took his starting point from Edgren's (1885) statistical survey of Sievers' Law variation in the Rigveda. Edgren had noticed that among the adjectives in *-(i)ya-*, there is a skewed distribution of forms. There are 1,747 examples of monosyllabic *-ya-* after light sequences and 1,552 examples of *-iya-* after heavy sequences, in accordance with the predictions of Sievers' Law. But Edgren also found a certain number of exceptions. The identification of exceptions was not surprising in itself. The Rigveda was, in all likelihood, not composed at one moment in history, but represents a chronologically stratified text; we might expect a certain amount of analogical development. The surprising aspect was the skew among the counterexamples. Edgren found 91 instances of *-ya-* after a heavy sequence, but 462 instances of *-iya-* after a light sequence. Seebold (1972:340–1) concluded that Sievers' Law is formulated incorrectly. The Vedic evidence supports what he called 'die Anschlußregel'. This amounts to an avoidance of *over-heavy* syllables: **y* is prohibited after a heavy sequence, but after a light sequence both **y* and **i* may be found.

Seebold argued that we must reconstruct two nominal suffixes: 'exocentric' **-ī+a-* and 'non-exocentric' **-i+a-*. He supposed that these merged after heavy sequences as *-iya-*, but left distinctive reflexes *-iya-* and *-ya-* after light sequences.⁵³

Further sources for *-iya-* may be considered. Mayrhofer (1986:161, 165–6) argued that some instances of **-iya-* after a light sequence can be explained as adjectives made by adding the thematic vowel to the locative morpheme: **-i-* + **-o-*, e.g. Ved. *dāmiya-* 'situated in the house'.⁵⁴ We may also consider the possibility that a suffix **-iHo-* may have existed (see Burrow 1949:58), insofar as this is

⁵³ Seebold supported his claim with the observation that as well as two distinct functional categories being found among the *-(i)ya-* suffixes, there may have been two distinctive accentuation patterns, *bewahrende Betonung* and *Kontrastbetonung*. In the *bewahrende Betonung* type, the accent on the form with the suffix is in the same place as the accent on its base form. In the *Kontrastbetonung* type, the accent on the form with the suffix differs from that of its base form. Seebold claimed that the forms with exocentric function have *bewahrende Betonung* and the suffix *-iya-* (even after light sequences) < **-ī+a-*, whereas the non-exocentric forms exhibit both accentual patterns and the suffix *-ya-* after light sequences (but of course *-iya-* after heavy sequences) < **-i+a-*. See Seebold (1972:251–2, 272–4, 277–8, 338–42). Compare Barrack (1998:187ff.) and Seebold's (2001:149–51) reply.

⁵⁴ Similarly, from **H₂enti* we have thematic derivatives in several languages, Gk *ἐναντίας* 'opposite', Ved. *āntyas* 'last', Goth. *andeis* 'end', etc.

distinct from Seebold's notion of a suffix **-ī+a-*.⁵⁵ This suffix could have remained consistently disyllabic after the loss of intervocalic laryngeals, skewing the Vedic distribution.

Under Seebold's analysis the comparatively uniform appearance of **y* after a light sequence in all relevant Gothic categories (excepting those alluded to in §2.2.4) is the result of a Germanic innovation rather than anything inherited (see §2.2.3.1).

2.3.3. A Converse of Sievers' Law in Vedic?

Edgerton (1934: esp. 237–41) understood Sievers' Law to involve the vocalization of prevocalic **y*, **w*, etc. after a heavy sequence, yielding, in phonetic terms, [iy], [uw], etc. He argued in addition for 'the converse of Sievers' Law' in Vedic, whereby prevocalic **iy*, **uw*, etc. *devocalized* after a light sequence.⁵⁶ He argued that in contexts where we would expect, on morphological grounds, to find a *sequence* of two like semivowels across a morphological boundary (e.g. **i-y*, **u-w*), the phonetic realization of this underlying sequence was determined by the surface environment. After a heavy sequence, morphologically motivated sequences were realized as such. But after light sequences, Edgerton's Converse caused a devocalization: i.e. $\check{V}CR + \check{R}V > \check{V}C\check{R}V$, rather than the expected $\check{V}C\check{R}RV$.

The best potential example of Edgerton's Converse operating word-internally is perhaps the 1st person dual form of class V verbs. In a form with a consonant-final stem such as *śaknuvāḥ* 'be able', we can see the suffix *-nu-* and the ending *-vaḥ*; we could simply understand the syllabic *u* vowel as the expected inter-consonantal semivowel variant. On the other hand, in the light-stemmed 1st person dual *sunvāḥ* 'press', morphological segmentation is difficult. Edgerton argued that *sunvāḥ* was the phonetic realization of the expected **su-nu-vaḥ*, with the morphologically motivated sequence $\check{V}Cu+vV$ realized as $[\check{V}CvV]$.

However, Seebold (1972:45–6) has put forward a convincing alternative explanation for *sunvāḥ*. He argued that it could be an analogical replacement for **su-nu-vāḥ*. If we look at the relationship between forms of the consonant-final stem *śak-nuv-ánti* (3rd pl.) and *śak-nu-vaḥ* (1st dual) from a synchronic perspective, it would be possible to infer a rule of *v*-deletion:

śak-nuv-ánti : *śak-nu-vaḥ* :: *su-nv-ánti* : X (where X = *sunvāḥ*).

This explanation acquires additional plausibility, when we realize that a very similar analogical mechanism is needed anyway, in order to account for the unexpected form of the 1st person plural *sunmāḥ*, which cannot be explained by Edgerton's Converse:⁵⁷

śak-nuv-ánti : *śak-nu-maḥ* :: *su-nv-ánti* : Y (where Y = *sunmāḥ*).

⁵⁵ It is very difficult to find evidence for an Indo-European phoneme **ī* that cannot be plausibly resolved into a sequence of **i* + **H*. However, Seebold (1972:338) certainly regarded these as distinct hypotheses. See further Chapter 3, n. 13.

⁵⁶ On the erroneous use of the term 'converse', see n. 27.

⁵⁷ On alternative explanations for this form, see Seebold (1972:45 and n. 92) with literature.

Edgerton (1934:238–40ff.) adduced many examples of compound forms where the first element of the compound ended with a syllabic semivowel and the second element began with a non-syllabic semivowel, e.g. *pari-yāṇa* ‘forming a circuit’, *su-varṇa* ‘gold’. He argued that such sequences were devocalized both word-internally and word-initially, originally only when a light syllable preceded, yielding *paryāṇa*, *svarṇa*, etc.⁵⁸

Edgerton’s evidence has been discredited by subsequent investigators. Lindeman (1965: esp. 98–9) argued that Edgerton’s Converse is a relatively recent Indic phenomenon; we should note that *paryāṇa* is from the Atharvaveda and *svarṇa* is a Classical Sanskrit form. Horowitz (1974:39–48) thoroughly undermined Edgerton’s indirect arguments from metre.⁵⁹ Seebold (1972:46) noted that in the Rīgveda there is only one possible example of Edgerton’s Converse at a compound seam,⁶⁰ while some 78 examples contradict it; such devocalizations are better regarded as a feature of the later language rather than an archaism.⁶¹ Sihler (2006 *passim*) provides an extremely detailed, and justifiably negative, example-by-example assessment of Edgerton’s Rīgvedic metrical evidence and finds it wanting.

In any case, as Seebold (1972:44) pointed out, a general devocalization of semivowels after light sequences is contradicted by the observation that a very large number of syllabic semivowels may be found after light sequences in the Rīgveda (see §2.3.2).

It is now absolutely clear that no converse of Sievers’ Law is to be attributed to Vedic. Furthermore, since the Gothic devocalization described (§2.2.5.2) certainly results from changes that occurred in the history of Germanic, there are no grounds for reconstructing a converse for Indo-European.

This is not to say that we can altogether rule out the possibility of semivowels sometimes being devocalized in Indo-European. We should note that there seem to be quite a few inherited formations where the best etymological explanation involves just such a process. For example, IE **méǵʰy-os* ‘in the middle’ (> Ved. *mādhyā-*) and **toty-o-s* ‘so great, so many’ (> Gk τóσσος/τόσος) might be neatly explained as thematic derivatives of old locatives in **-i* such as **toti* (> Ved. *tāti*, and Lat. *tot*, *toti-dem*). Such devocalization of a *semivowel* + *vowel* sequence across a morpheme boundary seems to be a regular principle of Indo-European internal sandhi. So, we ought to accept that in certain circumstances and at a certain stage, syllabic **i* could be devocalized in Indo-European.⁶² This is not the

⁵⁸ On the potential application of rules of semivowel syllabicity alternation word-initially, see Chapter 1 (p. 3) and §2.7.

⁵⁹ Edgerton had argued that even though *svarṇa* is not a Vedic form, his converse could still be seen to operate, because Ved. *su-varṇa* almost always occurs after heavy sequences or line-initially. However, Horowitz highlighted the dangers of using such indirect distributional inferences. On the role of metrical evidence more generally, see §2.8.2.

⁶⁰ The form is *anvartitā* ‘wooer’ at RV 10.109.2c, resolved as *anu-artitā* in the Pada-Pāṭha, but usually analysed as *ānu* + *vṛt-*. See Kühn (1970:89–104) and Sihler (2006:133).

⁶¹ For Seebold’s response to Edgerton’s other evidence, see the discussion in Seebold (1972:44–9).

⁶² Note that this devocalization, if in any sense an Indo-European sound change, would be at odds with a very early date for Mayrhofer’s (1986:161) class of delocalative adjectives, such as Ved. *dāmiya-* ‘in the house’, *āpiya* ‘in the water’ (see §2.3.2 and n. 54). However, we are not necessarily entitled to postulate such a sound change; conceivably, different principles of internal sandhi could have operated at different periods in Indo-European, such that earlier delocalative formations obeyed

same as Edgerton's idea of an ongoing productive rule of devocalization after any light sequence, applying from Indo-European until very shortly before the Vedic period.

2.3.4. The Weight of Laryngeals and Obstruents

Schindler (1977:60–1) argued that certain combinations of phonemes whose reflexes scan as heavy for the purposes of Vedic metre behaved as if they were light sequences from the point of view of Sievers' Law. He contended that sequences of obstruents (including sequences containing laryngeals, i.e. **-TT-* or **-HT-*) were followed by non-syllabic resonants in Indo-European rather than their expected syllabic alternants.^{63,64} If this theory could be substantiated, then it would clearly have considerable consequences for the proper formulation of Sievers' Law and perhaps also for our understanding of more general principles governing Indo-European syllabification. Therefore, it is appropriate to explore this issue in considerable depth.

2.3.4.1. Were Coda Laryngeals Non-moraic?

If we thought that the syllabic semivowel in Sievers' Law contexts arose as a direct result of the weight of the preceding sequence, rather than, for example, being more accurately characterized as a function of the permitted composition of syllable onsets, as seems to be the case in Germanic (see §2.2.6), then the hypothesis that laryngeal and obstruent clusters triggered the light Sievers' Law variant might seem rather unlikely. As far as we can tell, a sequence **-VHT-* yielded a long vowel through laryngeal loss accompanied by compensatory lengthening in most Indo-European languages, while the reflexes of sequences of obstruents **-TT-* make position in many Indo-European metrical traditions, and sometimes undergo loss of a coda consonant with compensatory lengthening (e.g. IE **nisdós* 'nest' > Lat. *nīdus* and Ved. *nīdā-*). Such facts leave the impression that syllables closed by laryngeals and other obstruents were heavy in Indo-European, and, therefore, we should expect sequences producing syllables closed in these ways to trigger the appropriate syllabic Sievers' Law alternant.

However, even with the assumption that the weight of the preceding sequence was the primary motivating factor for Sievers' Law, the potentially light nature of obstruent and laryngeal clusters would not be intrinsically implausible from a typological perspective. First of all, there are some languages which make a weight distinction between syllables with a sonorant in the coda and syllables with

one set of phonotactic rules, while later ones behaved differently. In such circumstances it would not be a foregone conclusion that the *dāmiya-* type was later than the *mādhyā-* type, *pace* Balles (1997:162).

⁶³ On the hypothesis that laryngeals were obstruents, see e.g. Lindeman (2004) with literature. Schindler did not discuss the weight of a sequence **-TH-*, possibly because most evidence for the treatment of this sequence before **y* appears to have been disrupted by Pinault's rule, a very early (possibly Indo-European) sound change, see §3.8.1 (p. 125f.).

⁶⁴ Schindler's examples involved **-TT-* and **-HT-* clusters which followed syllabic segments. He did not comment on the status of **-CHT-* clusters, whose reflexes in Vedic are sometimes light and sometimes heavy, but these also deserve discussion, see §2.3.4.5.

an obstruent; for example, only long vowels and syllables closed by sonorants are treated as heavy for the purposes of rules assigning stress in Kwakw'ala (a Wakashan language) and Inga Quecha (Gordon 2006:21, 26); in tone languages, the two types of syllable cross-linguistically most likely to accept a contour tone are those containing long vowels and syllables closed by a sonorant (Gordon 2006:32–3).⁶⁵ Secondly, there are examples of languages where different processes in the same language utilize different weight criteria—e.g. in Lhasa Tibetan *CV̄* syllables are heavy for both stress and tone assignment, while *CVR* syllables are heavy for tone but light for stress, and *CVT* and *CV* syllables are light for the purposes of both tone and stress assignment.⁶⁶ Furthermore, Lhasa Tibetan shows processes of compensatory lengthening of vowels due to obstruent loss. So it would not have been impossible for Indo-European rules of semivowel syllabification to utilize different weight criteria from those which operated in the historical processes of compensatory lengthening mentioned above. For these reasons, it does not seem valid to make a general inference that obstruents in clusters were non-moraic, *pace* Weiss (2009:39–40 and n. 42), even if we were to accept Schindler's evidence for the proposition that such sequences were light for Sievers' Law.

In any event, if we adopt the view that the triggering factor for Sievers' Law semivowel vocalization was the composition of the relevant syllable onset, rather than the weight of the preceding sequence *per se*, then the counter-intuitive nature of Schindler's idea is significantly diminished. Schindler was not of the view that a sequence **-HT-* or **-TT-* failed to close a syllable; on the contrary, he posited a syllable division **HT.RV* and **TT.RV* (see Schindler 1977:60 n. 4). It was the simplex nature of the resulting onset which supposedly allowed the non-syllabic Sievers' Law alternants to occur in this position.

2.3.4.2. Evidence for and against Schindler's Hypothesis

As evidence in favour of the idea that sequences of obstruents behaved as light sequences for Sievers' Law, Schindler cited the failure of the Vedic absolute suffixes *-tvī*, *-tvā*, and *-tvāya* to show syllabicity alternations, even after a preceding consonant, e.g. *yuk-tvā* not **yuk-tuvā*. However, an argument based on these suffixes, which seem to result from an Indo-Iranian process of resegmentation, would be a slim basis for reconstructing the Indo-European situation.⁶⁷ The behaviour of these formations could serve equally well as an indication of the chronology of the later breakdown of Sievers' Law, or an Indo-Iranian change in the conditions governing Sievers' Law.

A better case is perhaps offered by the isolated Ved. *mātsya-* 'fish' (cf. YAv. *masiia-*), which consistently has non-syllabic **y* rather than the expected **i*.

⁶⁵ I am most grateful to Dr Ranjan Sen for pointing me towards some very useful secondary literature on this subject.

⁶⁶ On inconsistency in weight criteria in general, see Gordon (2006:5–8, 54–84), and on Lhasa Tibetan, see Odden (1979), Dawson (1980) *non vidi*, and Gordon (2006:37–8).

⁶⁷ On the late nature of these suffixes, see Seebold (1972:214–17), and on *-tvāya* in particular, see Proferes (2003:210–11), who argues for a late date for this formation on the grounds that eight out of nine Rigvedic examples are in Book 10, in hymns of non-Śrauta character.

However, the use we can make of this example in an Indo-European context is unclear, since the etymology of this word is unknown and it may not have a history outside Indo-Iranian.

Another potential example with a claim to considerable antiquity is *virapśa-* 'abundance, wealth' < **vira-pḱw-o-* (rather than **vira-pḱuw-o-*). This appears to be a compound with a first element *vira-*, a form of the simplex noun *vira-* 'man'.⁶⁸ The second element is thought to be the zero grade of the stem **pḱu* 'cattle, livestock' (> Ved. *páśu-*, Av. *pasu-*, Lat. *pecus*, Goth. *faihu*, etc.), though the phonological development here is unique.⁶⁹ Subsequent Indo-Iranian and Indic sound changes have rendered *virapśa-* morphologically opaque, so we may assume that the non-syllabic nature of the reconstructed semivowel **w* does not result from later analogical influences.

The combination of 'men' and 'cattle' to give a phrase or compound denoting 'wealth' is found in a number of Indo-European languages, e.g. Lat. *pāstōrēs pecuaque* (Cato Agr. 141); see Watkins (1995:210–11). More specifically, the combination of **pḱu* and **wiHro-* is not only found in Ved. *virapśa-*, but also in Umbr. *ueiro pequo* (Tab. Ig. VIa 32 etc.) and Av. *pasuuā viraiiā* (Yt 13.10 etc.). However, it is important to note that this does not in any sense guarantee the Indo-European provenance of the Vedic compound *virapśa-*, or by extension the antiquity of the contained sequence **-pḱwa-*. On the contrary, this particular formation is peculiar to Old Indo-Aryan; elsewhere, the equivalent collocation is achieved syntactically or with a different type of compound. It is doubtful whether we can even project *virapśa-* back into Indo-Iranian, because Avestan has a *dvandva* compound which agrees closely with Umbrian. It seems unlikely, therefore, that *virapśa-* can tell us anything about the interaction of Sievers' Law with **-TT-* clusters in Indo-European. Nevertheless, it might offer us an insight into the operation of Sievers' Law early in the history of Old Indo-Aryan.

2.3.4.3. Difficulties with *ūrdhvá-*

Perhaps the best evidence for Schindler's limitation of Sievers' Law is the Vedic form *ūrdhvá-* 'straight, upright'.⁷⁰ It is morphologically isolated, it has a potentially Indo-European etymology, and its cognates are widely attested in

⁶⁸ The short *ī* of *vira-* is mysterious. Usually the long **ī* suggested by Ved. *vīra-*, Av. *vīra-*, Lith. *výras*, and Latv. *vīrs* is attributed to an original laryngeal, i.e. **wiHro-*. However, some languages reflect a short *ī*, e.g. Lat. *vir*, Goth. *wair*, OIr. *fer*. In the case of Latin, Celtic, and Germanic, this shortening has been seen as evidence for Dybo's Law (see Schrijver 1991:334ff., 509, 531ff. with references). Since this change certainly did not affect Vedic, the specific problem remains. Ved. *vira-* might be taken as an example of laryngeal loss in a compound, i.e. *vira-* < **wiHro-*; for the phenomenon, see Normier (1980a:276) and Beckwith (1995), but cf. Lindeman (1997:61–2 and n. 52; 1997–8:94–8). This development is disputed, and in any case is usually invoked to explain the loss of a laryngeal in the *second* part of a nominal compound rather than the first. Note that even if this explanation is correct, it does not guarantee the antiquity of this particular compound; it would merely explain the origin of the combining form *vira-*, which occurs elsewhere, cf. *virāśáh-*.

⁶⁹ The word-initial treatment of the zero grade **pḱw-/pḱu-* is reflected in Ved. *kṣúmant-* 'rich', Av. *fšūmant-* < **pḱu-mant-*; cf. Av. *fšūša-*, *haurva-fšu-* 'whose cattle are sound', etc. See Bloomfield (1909).

⁷⁰ I am most grateful to Dr Nick Zair for several interesting and lengthy discussions of the manifold problems that cluster around this form.

other Indo-European languages. It is sometimes taken to reflect an earlier form **wrHd^h-wo-*, with a non-syllabic word-internal semivowel, rather than **wrHd^h-uwo-*, which would have been expected if a cluster **-HT-* had counted as a heavy sequence.⁷¹ But here too it is difficult to take the Vedic evidence at face value; it is not at all straightforward to reconstruct the Indo-European precursor of *ūrdhvá-*.

A number of forms have been thought to be cognate: YAv. *ərəδβα-*, *ərəduua-* ‘raised up’; Gk *ὀρθός* ‘straight, upright’; Lat. *arduus* ‘high, steep’; OIr. *ard* ‘high’; ON. *qrðugr* ‘upright’.⁷² However, there are significant inconsistencies in the comparative data: Greek provides a certain amount of evidence for reconstructing a root-initial **w-*, though this is not supported elsewhere; Greek appears to have a full-grade vocalism in the root (as does the different formation found in Germanic), whereas the Indo-Iranian evidence calls for a zero grade; Vedic suggests a word-internal laryngeal, but this creates problems of varying degrees of seriousness everywhere else. It is difficult to reconcile all the evidence.

Firstly, there is some question as to whether an initial **w-* should be reconstructed for this word. This issue is relevant to the question of Schindler’s hypothesis only inasmuch as it delimits the range of comparative evidence that can be adduced in reconstruction. There is a certain amount of support for deriving Gk *ὀρθός* from an earlier **wort^hwós*: the gloss *βορσόν· σταυρόν, Ἥλειοι*; Arg. *φορθαγόρας* (SEG 11.336, Argos); Lac. *φορθασία* and *φορθεία*, etc. (see Chantraine 1999:818–19). In turn, **wort^hwós* is supposed to reflect an earlier **worHd^hwós*, an *o*-grade variant of the zero-grade form which yielded Ved. *ūrdhvá-* and YAv. *ərəδβα-*. There is no sign of initial **w-* in the Indo-Iranian forms, but this could be explained as a dissimilation owing to the suffixal **w* later in the word.⁷³ If initial **w-* were reconstructed, then the connection with the Latin, Germanic, and Celtic forms would be ruled out, unless we attributed a similar dissimilation to the early history of each of these language groups.

However, the evidence for **w-* in Greek may be brought into question. If Ruijgh (1967:158 n. 315) is right to identify the Mycenaean personal name *o-two-we-o* (gen., PY An 261, 2–5) as [*ort^hwōwehos*], with an initial element *ort^hwo-*, then **w-* is more or less ruled out.⁷⁴ The Greek forms with initial digamma, such as *φορθεία*, the Laconian epithet of Artemis, could instead be related to the root **werd^h-* ‘increase’ (cf. Ved. *várdhati*). To some extent, we could afford to remain agnostic on this question, since, as we shall see, these problems are minor when set against

⁷¹ Sihler (2006:185) points out that we actually find trisyllabic *ūrdhuvá-* on two or three occasions in the Rígvēda. However, this must be balanced by the observation that it is non-syllabic on 74 occasions (see Seebold 1972:293).

⁷² See Bader (1980:37–61) for syntactic and semantic parallels between the use of Lat. *arduus* and these various cognate forms.

⁷³ See EWAia I 244. We may have a parallel for a loss of word-initial **w-* before a sequence **RHC* in Ved. *úrj-* ‘nourishment, power’ < **wrHg-* (cf. Av. *vərəz-/varəz-*, Gk *ὀργή, ὀργάω*, OIr. *ferc*). But the parallel is not perfect, since in this example Avestan shows the reflex of the initial **w*. For this reason, it seems better to invoke a dissimilation to explain *ūrdhvá-* and *ərəδβα-*.

There would be Indo-Iranian support for an initial **w* in *ūrdhvá-* if these formations were related to the verbal root in Ved. *várdhati* ‘increases’ (see EWAia I 244–5), though this might be a stretch semantically, and the failure to find a laryngeal reflex both here and in the Avestan verbal adjective *vərəzda-* is troubling. For the expected outcome of laryngeals in such positions in Avestan, see n. 76.

⁷⁴ For a development of the idea that we need to recognize two originally distinct etymological groups, forms with initial **w-* and forms without it, see Bader (1980:264ff.).

the other inconsistencies in the comparative evidence. However, I think it is fair to say that the balance of the evidence speaks against reconstructing initial **w-* in this word.

If there is no initial **w-*, then we must in all probability reconstruct an initial laryngeal. Even if we supposed that an Indo-European root could begin with **r-*, we would still need to explain the root vocalism of the Greek form. Either ῥϑόζ shows a full-grade vowel, in which case, for morphological reasons, we must reconstruct an original word-initial consonant which was subsequently lost in Greek and all the other relevant languages (i.e. **H-*), or else we must suppose that the *o*-vocalism arises through Rix's Law from an initial sequence **H₃rd^h*.⁷⁵ In either case, a word-initial laryngeal seems highly likely for this root.

The question of root vocalism arises again when we attempt to reconcile the long *ū*-vowel in Vedic with the remaining evidence. The length of this vowel is usually attributed to an original word-internal laryngeal, i.e. **H₁rHd^hwe/o-* (or **w₁rHd^hwe/o-* for those who assume initial **w-*). However, Avestan lacks the expected laryngeal reflex, showing *arəδβa-*, rather than **arəδβa-*.⁷⁶ Greek, Latin, and Celtic also fail to show any trace of a laryngeal. One approach to the problem is to reconstruct without a word-internal laryngeal and explain the vowel length in Vedic in some other way. Schrijver (1991:69, 312–13) reconstructs **H₃rd^huos* and tentatively attributes the long vowel of *ūrdhvā-* to phonotactic constraints; he suggests that a sequence *ūrC-* might have been avoided through a lengthening of the vowel, given that this particular sequence does not otherwise occur in Sanskrit. But the existence of Ved. *urvārā-* 'field' and Skt *ulbya-* 'having a membrane' (ŚBr.), with a parallel sequence *ūlC-* without lengthening, probably speaks against such an assumption.⁷⁷

Another approach, therefore, is to reconstruct a word-internal laryngeal and attempt to account for the absence of the expected reflexes elsewhere. In his explanation of the Avestan evidence, Cantera (2001) reconstructs IIr. **rHdhwa-* (< IE **wrHd^hwo-*). He argues that while **(C)RHC-* usually yielded Av. *(C)arəC-*, it regularly gave *(C)arəC-* when the syllabic liquid was both unaccented and was preceded or followed by a labial [*p, b, m, w*]; in the case of **rHdhwa-* the labial environment for Cantera consists of the **w* in the following syllable.

This account seems to cover the Avestan facts, but it only explains the adjective 'upright' and a handful of other much more doubtful forms.⁷⁸ It is perhaps questionable whether we should project this problem back into prehistory, especially given that there are other Avestan inconsistencies in the outcome of initial **rC-* and **rHC-*. For instance, Av. *arəduuī-* 'moist' raises the converse problem: if it is the feminine of the same *u*-stem adjective as RV *ṛdu-*, then IIr. **rC-* unexpectedly gave rise to Av. *arəC-*. At any rate, it seems that a reconciliation between the Vedic and Iranian evidence is possible, if not entirely satisfying.

⁷⁵ For Rix's Law, see Rix (1970:79ff.) and Mayrhofer (1986:129–131). Through this Greek sound change **#H₁RC- > #eRC-*, **#H₂RC- > #aRC-*, and **#H₃RC- > #oRC-*. For a recent challenge to the validity of Rix's Law, see Nikolaev (2005). However, in general the case for Rix's Law seems strong.

⁷⁶ For the expected vocalism, compare Av. *darəγa-* beside Ved. *dīrgā-* < **d^hlg^hó-*.

⁷⁷ I owe my thanks to Dr Elizabeth Tucker for pointing out this latter example (pers. comm.). The example of *urvārā-* is mentioned by de Vaan (2008:52), though he does not seem to regard it as grounds for ruling out Schrijver's explanation.

⁷⁸ See the scepticism of de Vaan (2003:506 n. 648).

Although lacking a direct reflex, Lat. *arduus* may offer indirect support for the reconstruction of a word-internal laryngeal. We would normally expect $*d^h$ to develop into Latin *b* in an environment after an *r* or *u/w* (cf. *verbum* < $*werd^h\text{-}om$ or *ruber* < $*H_1rud^h\text{-}ro\text{-}s$).⁷⁹ If we supposed a development $*HrHd^h\text{-}wos$ > $*aradu\text{-}wos$,⁸⁰ which in turn yielded *arduus*, then the Latin *d* could be explained (see e.g. Meiser 1998:109; cf. Bader 1980:270).

We do not seem to find any trace of a laryngeal in Gk ὀρθός. However, it is fairly widely believed that an Indo-European laryngeal was lost after a resonant in an *o*-grade root: cf. τόλμα ‘courage’ < $*tolH_2\text{-}m\eta$ beside τελαμών ‘strap for bearing’ < $*telH_2\text{-}$ and τηλτός ‘patient, steadfast’ < $*tlH_2\text{-}to\text{-}s$, or πόρνη ‘prostitute’ < $*porH_2\text{-}neH_2$ from the same root as πέρνημι ‘sell’, aorist πέρασαι < $*perH_2\text{-}$.⁸¹ If we were to assume a similar laryngeal loss here, i.e. ὀρθός < $*HorHd^h\text{-}wos$, then the discrepancy with Vedic would be resolved. However, insofar as this change is reckoned to be of Indo-European antiquity, this approach would almost certainly commit us to assuming that the *o*-vocalism in the root goes back to a real Indo-European *o*-grade, and does not arise via Rix’s Law from $*H_3rd^h\text{-}wos$.⁸² If we accept that this is an *o*-grade formation, then we are obliged to explain the discrepancy between the Greek evidence and the Indo-Iranian evidence which demands a zero-grade form. This would either imply that there was ablaut in an Indo-European thematic formation $*HorHd^h\text{-}we/o\text{-}$ $/*HrHd^h\text{-}we/o\text{-}$, which we would not expect to find, or else we would have to assume that the Indo-Iranian, Greek, and other forms of this word represent independent thematizations of an originally ablauting *u*-stem formation:

⁷⁹ While we do not have another example with an $*r$ preceding and $*w$ following $*d^h$, it is nevertheless rather difficult to accept Prof. Lubotsky’s suggestion (*apud* Schrijver 1991:313) that the presence of both *r* and *w* together would have had the effect of blocking the development of $*d^h$ > *b* when individually they promote it, unless a suitable typological parallel could be found.

⁸⁰ If we accept the possibility of a change $*rH\text{-}$ > $*ara\text{-}$, cf. *palma* < $*palama$ < $*p_lH_2\text{-}meH_2$; cf. Gk παλάμη.

⁸¹ For further examples of this laryngeal loss, the so-called ‘Saussure effect’, and parallel word-initial examples in a sequence $\#H\text{RoC(C)}\text{-}$, see Beekes (1969:74–6, 238–42), Peters (1980:14, 61 n. 30, 85), Rasmussen (1989:175ff.; 1992:349ff.), Melchert (1994:49ff.), and Nussbaum (1997).

⁸² On the whole, I do not find the evidential basis for the Saussure effect entirely persuasive. However, if we accept it for a moment, then even if this were a purely Greek change, it seems to me that it would still have to chronologically precede Rix’s Law. Firstly, there does not seem to be any other evidence for laryngeal loss being triggered by a secondary Greek $*o$ of the sort which could have emerged via Rix’s Law from a putative zero-grade form such as $*H_3rHd^h\text{-}we/o\text{-}$. That having been said, it is admittedly difficult to find convincing examples of the regular outcome of a sequence $*H_3RH\text{-}$, since it can always be supposed that there is a full-grade vowel at work.

Secondly, if we believe in the word-initial Saussure effect, whereby laryngeals are deleted before a resonant in *o*-grade roots ($\#H\text{RoC(C)}\text{-}$), then it would be difficult to argue against the notion that the word-initial and word-internal phenomena are part of the same change—the conditions are mirror images of one another. This word-initial effect is supposed to interact with laryngeals (qua laryngeals) before they become full vowels in Greek, and it bleeds Rix’s Law, as in ομείχω ‘urinate’ vs μοιχός ‘adulterer’, or οὔλος ‘fleece’ (< $*H_2wolH_1\text{-}no\text{-}$), or Hsch. ἄρσαν ‘dew’ (< $*H_2wers\text{-}$, cf. assimilated Hom. ἔερση) vs οὔρεω ‘urinate’ (< $*H_2wors\text{-}$). So given that the word-initial Saussure effect certainly precedes Rix’s Law, we should work on the assumption that the word-internal Saussure effect does so as well, in the absence of independent evidence to the contrary. In that case, we would not expect a word-initial $*o\text{-}$ which was the output of Rix’s Law to be able to trigger the loss of a word-internal laryngeal, and therefore we would have to argue that the *o*-vowel of ὀρθός is a true *o*-grade vowel.

*HórHd^hu-/*HrHd^héw- vel sim.⁸³ The assumption of an original ablauting *u*-stem in Indo-European could explain the discrepancies in vocalism and laryngeal reflexes in the comparative evidence quite elegantly.

Naturally, these conclusions have consequences for the ways in which we can use the form *ūrdhvá-* in understanding Sievers' Law. The Saussure effect is the only realistic means I am aware of for losing the supposed word-internal laryngeal in Greek. But if we accept this explanation, then we have to give up the notion of reconstructing a single Indo-European form from which we can derive Ved. *ūrdhvá-*, YAv. *arəðba-*, *arəduua-*, Gk *ῥῥόδος*, Lat. *arduus*, OIr. *ard*, and ON. *qrðugr*. Instead we must suppose that individual language groups innovated separately on the basis of an inherited paradigm. If this was what happened, then *ūrdhvá-* ceases to have a bearing on the question of the conditions governing Sievers' Law in Indo-European, since the formation itself and therefore the contained heavy sequence preceding **w* is of Indo-Iranian antiquity at best.

On the other hand, if we do not accept this explanation for the loss of a laryngeal, then the only viable alternative seems to be to accept that there was no word-internal laryngeal originally. In this case, the long vowel of *ūrdhvá-* would be an innovation and once again irrelevant for our assessment of the conditions governing Sievers' Law in Indo-European.

2.3.4.4. Schindler's Restriction in Indo-European?

So it seems that none of Schindler's evidence can be used to assess the behaviour of **-TT-* and **-HT-* clusters in Sievers' Law contexts in Indo-European. There have been attempts to find Vedic counterexamples to Schindler's restriction, but this counter-evidence is not particularly compelling either; Sihler (2006: 185–8) points out that in the forms *gābhastiyos* 'arms, hands' (gen./abl. dual) and *āpṛcchiya* (perhaps from **prk-sk-iyō-*) the obstruent clusters seem to count as heavy. However, the value of such evidence is, once again, difficult to assess, given the lack of an Indo-European provenance for the relevant putatively heavy sequences.⁸⁴

Sievers' Law in Gothic certainly does not perpetuate any comparable restrictions: cf. *wahseip* 'grow' < **wahs-iyi-p* < **H₂wogs-éye-ti*, where the cluster counts as a heavy sequence in a historically secondary Sievers' Law context (see Ringe 2006:189). Furthermore, it is clear that laryngeals make a contribution to weight in potentially inherited examples such as *sōkeip* < **sāg-iyi-p* < **seH₂g-iyē-ti* (see §2.2.2). However, the testimony of Gothic is of dubious value when we are considering such matters of detail, given the fully automatic nature of Sievers'

⁸³ Beekes (1969:241) suggested an original *u*-stem. Schrijver (1991:313) entertained the idea, but rejected it on the basis that the thematic formation is general. But it is worth pointing out that the ON form *qrðugr* does not appear to show any trace of a thematic vowel and could, but need not, be based directly on a *u*-stem.

⁸⁴ Even if *gābhastiyos* is cognate with Lat. *habere*, Lith. *gabanà* < **g^hab^h-*, the stem form incorporating the heavy sequence does not seem to be older than Indo-Iranian.

The putative verbal formation **prk-sk-iyō-* cannot realistically be of Indo-European antiquity. In any event, it may involve a sequence of three successive obstruents, which could have been treated differently to the sequences considered by Schindler.

Law alternation within Germanic; compare the behaviour of new heavy sequences from syllabic **r* and **n* (see §2.2.5).

If Dunkel (1982:53–5) is right to categorize Gk ὑπίος ‘supine’ as a Sievers’ Law disyllabic variant of the archaic, inherited, and unproductive suffix **-tye/o-*, which is found in ὀπίσσω ‘backwards’ < **opi-tyō* and πρόσσω ‘forwards’ < **pro-tyō*, then obstruent clusters may have been heavy for these purposes in Greek also (see §5.4). However, the value of this evidence needs to be assessed in the context of evidence for Sievers’ Law in Greek more generally, a task that will be taken up in the rest of this book.

In general, it seems that the evidence for Schindler’s restriction is confined to Vedic and relies on examples which are unlikely to be older than Indo-Iranian. Therefore, it might be better to see this as a feature of the history of Indo-Iranian. Such a notion might be countered on the grounds that, as things stand, the testimony of Vedic is the only strong reason for reconstructing Sievers’ Law for Indo-European at all, and that we are therefore not in a position to pick and choose which aspects of its testimony to accept. However, we may be entitled to exercise caution in reconstruction; Schindler’s restriction is a more complex rule than Sievers’ Law, and we have as yet no evidence outside Indo-Iranian to support that additional complexity. Therefore, the only principled response is to admit ignorance of this feature for the moment. When we consider the Greek evidence in detail, we will return to this question.

2.3.4.5. *The Weight of Word-Internal *-CHT- Clusters*

Schindler (1977) did not express any views about the weight of **-CHT-* clusters. It is difficult to judge a priori how we should expect them to behave. If one adopted the widely held view that laryngeals were obstruents in Indo-European, then it would not seem terribly unreasonable to assume that a sequence **-CHT-* might have counted as a heavy sequence, assuming, for a moment, that any surface prop-vowel that may have arisen in such complex sequences in Indo-European did not affect the computation of Sievers’ Law effects. This would not necessarily be incompatible with Schindler’s hypothesis that a sequence **-HT-* failed to trigger the heavy Sievers’ Law variant of a following prevocalic semivowel, since it is clear, from the examples adduced, that Schindler was trying to characterize the behaviour of clusters of two obstruents following a syllabic segment. We are dealing in this instance with a different sequence **-CHT-* + *-yV*.

Unfortunately it is difficult to adduce any compelling evidence for or against this hypothesis, because laryngeals in such sequences usually yielded a short vowel, rendering the resulting reflex as a synchronically light sequence. Such an outcome would always be susceptible to reanalysis, and so if we find non-syllabic semivowels after such sequences, it is unclear whether this represents an inheritance or an innovation. Nevertheless, if we regularly found syllabic semivowels after the reflexes of **-CHT-* clusters, even when those reflexes were synchronically light (i.e. Ved. *-CiT-iyV*), we might be tempted to draw substantive conclusions. The Vedic evidence turns out to be rather unhelpful for a variety of reasons.

A certain number of examples cannot easily be used to argue about the status of **-CHT-* sequences for Sievers’ Law, because they belong to morphological categories which do not exhibit any Sievers’ Law effects in any phonological context. Insofar as Sievers’ Law does not function in these categories, it seems difficult

to use their evidence in any straightforward way to refine our understanding of how Sievers' Law once functioned. On the other hand, there are certain categories where the synchronic weight in the root is invariant or nearly invariant, and the form of the suffix is correspondingly invariant or nearly invariant. Even if Sievers' Law appears to be respected in such formations, it is difficult to be sure that the form of the suffix has not simply become fixed at some stage; given the intrinsic difficulty of knowing the antiquity of any particular example, the possibility of a fixed suffix shape makes it much more difficult to use categories of this kind to draw detailed conclusions about the prehistoric conditions under which Sievers' Law might have operated. Without a detailed examination of the provenance of every member of such invariant (or almost invariant) categories, it is difficult to know whether we can attach significance to the fact that we find a syllabic or non-syllabic semivowel in any given instance.

We find a number of examples of futures in *-sya-* from laryngeal final roots (Seebold 1972:291):

jani-sya- 'be born' < **ĝenH*₁;

bhavi-sya- 'become' (twice with **y*) < **b^hewH*₂;

sani-sya- 'acquire' (with **y*) < **senH*₂;⁸⁵

bhari-sya- (once with **y*) < **b^her(H)*.⁸⁶

However, we cannot really use this evidence, since syllabic readings in this category are vanishingly rare (one example *kṣe-ṣiya-* 'dwell'), despite the existence of several examples with conventional heavy sequences (*je-ṣya-* 'win' once with *y*, *dhak-ṣya-* 'burn up' once with *y*, etc.). We might well conclude that Sievers' Law never operated on this category, either because it was created too late, or for some other reason. In any event, it should be reasonably clear that a category like this cannot be used to establish the behaviour of **CHT*- sequences.

We find an absolute *skabhitvī* (< ?**skeb^hH*- LIV² 549–50), with non-syllabic *v* in its one occurrence (Seebold 1972:213–17). But the evidence of this example needs to be balanced against the fact that this morphological category shows almost no syllabicity alternations anyway,⁸⁷ and is, furthermore, an Indo-Iranian innovation rather than an Indo-European inheritance (see §2.3.4.2). Therefore we should perhaps exercise caution in attempting to deduce the finer details of semivowel alternations from such an example.

We find *sani-tvan-* 'gift' (with *v*, Seebold 1972:297) < **senH*₂- (*EWAia* II 696–7); however, in this formation a synchronically light sequence always precedes the suffix and, perhaps in consequence, the suffix is always *-(t)van-* (f. *-vari*). If the suffix was invariant, then it is difficult to rule out the possibility that it was fixed in an invariant form at the stage when *sani-tvan-* was built, and in consequence it is difficult to know how seriously to take this particular example.

⁸⁵ Seebold (1972:292) characterizes this as a *-ya-* denominative, whereas Mayrhofer (*EWAia* II 696–7) thinks it is a future form. Grassmann (1873 s.v.) admits both possibilities.

⁸⁶ If we accept that there was a *seṭ* variant of this root, see *EWAia* II 249.

⁸⁷ The three absolute suffixes, taken together, show only one instance of a syllabic semivowel out of 35 examples with a heavy sequence (see Seebold 1972:214). On the importance that Schindler (1977) attached to this fact, see §2.3.4.2.

We have the abstract nouns *mahi-tvá-* ‘greatness’ (56 times with *v*) and *mahivaná-* ‘greatness’ (13 times with *v*) < **meġH₂-*. But this formation barely shows any deviation from a non-syllabic reading (admittedly the instances with a preceding overtly heavy sequence are few and far between; see Seebold 1972:294–5).

From the same root **meġH₂-* we find *mahiṣ-vat-* ‘big’ (with *v*). This suffix also overwhelmingly follows overtly light sequences and can always be read with a non-syllabic semivowel.⁸⁸

There are various *-ya-* verbs exhibiting the desired environment. However, the use we can make of these is limited, once again, by the fact that *-ya-* verbs exhibit the non-syllabic semivowel *y* almost without exception.⁸⁹ We find a denominative *taviṣ-yá-* ‘be strong’ (with *y*) beside *taviṣá-* ‘strong, strength’ < **tewH-s-* (Seebold 1972:292, *EWAia* I 638–9).⁹⁰

We find *sanīṣ-yú-* ‘long for’ (six times with *y*, Seebold 1972:285) < **senH₂-* (*EWAia* II 696–7). But the *-yú-* suffix only occurs after an overtly heavy sequence once, and then we still find *-yu-* and not *-iyu-*.

We find *barhiṣīya-* ‘relating to the sacrificial grass’ (once with *i*, Seebold 1972:244). This cannot really be adduced in support of the notion that inter-consonantal laryngeals made heavy sequences, in part because the laryngeal origin of the *i* in the stem is far from certain. The root is **b^helg^h-*, and it seems to have an *-iṣ-* suffix abstracted from *seṭ* roots like *IIr. *staris-* < **sterH₃-s-* (see *EWAia* II 213–14). Given that this process could have taken place at any stage, we cannot be sure that this form reflects the phonological properties of laryngeals qua laryngeals. Even if it did, there is a further level of uncertainty, because the adjectival suffix could have been *-iya-* < **-iHo-* vel *sim.*, in which case the syllabicity of the semivowel would have nothing to do with the weight of the preceding sequence.

There are some formations which are, in principle, capable of providing evidence for the weight of **-CHT-* sequences. These come from categories which show significant traces of semivowel syllabicity alternation in other contexts. These are the categories which might sensibly be used to refine our understanding of Sievers’ Law. However, far from providing confirmation that **-CHT-* sequences behave as consonant clusters, most relevant instances turn out to be light for Sievers’ Law, and the reflex of **CHT-* only seems to be heavy when the outcome in Vedic is either a long *ī* vowel, or zero—where that gives rise to a Vedic consonant cluster. This gives the impression that the conditions of Sievers’ Law, in these examples at least, might be satisfactorily explained in terms of the synchronic environment in Vedic rather than necessarily reflecting anything particularly archaic. This situation could be the result of a reanalysis.

⁸⁸ On some alternative readings with a syllabic semivowel, see Seebold (1972:298).

With the same suffix, we find *hari-t-vat-* ‘golden’ (once with *v*) < **g^helH₃-* (cf. Gk *χλωρός* etc.). However, given that we have Ved. *hari-* independently beside a Gk *-ρο-* adjective, it seems just as likely that the *i* of Vedic reflects a true *i*-stem formation (**g^helH₃-i-*) rather than being a laryngeal reflex. In this case, *hari-t-vat-* would not be relevant for this question.

⁸⁹ On the significance we should attach to this fact, see §6.3.

⁹⁰ We also find *taviṣyā* ‘vehemence’ (once with *y*), an abstract in *-ā* from a denominative verb in *-ya-* (Seebold 1972:279). Feminines with *-yā* do exhibit syllabicity alternations and we might therefore be tempted to take the evidence of this form into account. However, given that the base verb *taviṣ-yá-*, from which *taviṣyā* is formed, is not treated as heavy and furthermore belongs to a category without the necessary syllabicity alternations, we might not in fairness expect its derived form to show Sievers’ Law behaviour.

Gerundives such as *jānitva-* 'to be born' (four times with *v*) < **ġenH₁*- (Seebold 1972:293) can potentially be taken into account, because this category does exhibit syllabicity alternations elsewhere. These usually conform fairly closely to the predictions of Sievers' Law; cf. *kārtuva-* 'to be made' (14 times with *u* and only twice with *v*). Another example where *i* < **H* seems to make a light sequence is *sani-tva-* 'to be won' (once with *v*, Seebold 1972:293) < **senH₂*- (*EWAia* II 696–7). However, it is not clear that the gerundive is a particularly old category, and we should certainly hesitate before reconstructing any aspect of Indo-European phonology on such a basis alone.

Interestingly we also find *jāntuva-* 'to be born' (once with *u*, Seebold 1972:293) from the same root as *jānitva-*, where the laryngeal reflex is missing.⁹¹ One might try to argue that this example shows that the loss of the laryngeal pre-dated the emergence of Sievers' Law, given that the one process seems to feed the other. However, regardless of the ultimate age of this laryngeal loss, the outcome is a heavy sequence for Sievers' Law in the surface phonology of Vedic; therefore this form can tell us little about the relative chronology of these changes, since a re-analysis would always have been possible for as long as Sievers' Law continued to operate.

Similarly, it is difficult to assess the evidence of the gerundive *bhavītuvā* 'future' (once with *u*, Seebold 1972:294) < **b^hewH-*. This seems to contain a heavy sequence from the point of view of Sievers' Law. However, we cannot know whether this simply reflects the effects of the surface weight of the long-vowel outcome of inter-consonantal laryngeals peculiar to Indic, or alternatively the original heavy character of a sequence such as **b^hawH-tuwa-* in Indo-Iranian.

The rather frustrating conclusion is that solid evidence for the weight of word-internal *-*CHT*- sequences in Vedic is very hard to find, and the evidence which might be useable can be explained in terms of the synchronic weight of the various reflexes of these sequences in Vedic, rather than giving a clear indication of how these sequences might have behaved at an earlier stage.

2.3.5. Conclusions from the Vedic Evidence

It is clear that Vedic exhibits rule-governed alternation in the syllabicity of semivowels and that this alternation has a number of close parallels to the situation in Germanic: the syllabicity of post-consonantal prevocalic semivowels is, at least partially, determined by the weight of the preceding sequence.

However, there are also significant differences. Adherence to Sievers' Law in Germanic is fairly strict and all instances of a given word tend to exhibit the same pattern of semivowel syllabification. In Vedic, Sievers' Law is a statistical matter, with words exhibiting variant behaviour from one instance to the next; this may have more to do with the fact that the phenomenon is inconsistently preserved and perpetuated in a metrical tradition than with the original characteristics of any inherited rule.

After light sequences in Vedic there are a disproportionate number of exceptions to Sievers' Law as originally formulated. From a Vedic point of view, it might be more accurate to characterize this phenomenon as an avoidance of over-heavy sequences. Along the same lines, Vedic has no converse of Sievers' Law.

⁹¹ On such apparent laryngeal loss, see Hackstein (2002).

Vedic does not seem to show the chronological inconsistencies found in the Germanic evidence. Heavy sequences created in the history of Vedic do not generally act as heavy sequences for Sievers' Law.

While Germanic long vowels from sequences involving laryngeals constitute an important part of the evidence for the behaviour of heavy sequences, the Vedic facts are far less clear: there are no definitive Vedic examples showing the weight of clusters involving laryngeals.

2.4. FURTHER COMPARATIVE COMPLICATIONS

After Sievers' original discovery, a number of patterns in several language groups proved amenable to a Sievers' Law analysis. Hübschmann (1879:362–7) adduced Avestan and Old Persian evidence for Sievers' Law.⁹² Sommer (1914) added important new testimony from Baltic, though with certain modifications to Sievers' original conditions (see §2.4.2). There is little or no evidence from Celtic. Old Irish does not appear to preserve evidence for a contrast between **i* and **y* in this position, and though British Celtic does, the status of Sievers' Law is rendered doubtful by the slender nature of the supporting evidence and the existence of several apparent counterexamples (see Schrijver 1995:282–9, 325).

Tocharian offers evidence for post-consonantal prevocalic **i* and **y*. However, there does not appear to be a clear Sievers' Law pattern. Ringe (1991) attributes this to the disruptive effect of the suffix **-iXo-* (i.e. **-iHe/o-*) and **-io-* (i.e. delocative derivatives). Using mainly Tocharian B evidence, Pronk (2009) has argued for a pattern of anaptyxis in Tocharian *-CR-* clusters with conditioning factors which are 'strongly reminiscent' of Sievers' Law, but the conditioning factors are of a purely Tocharian character, leading to the conclusion that the anaptyxis belongs to the history of Tocharian rather than being an Indo-European inheritance.⁹³ If it could be shown that an inherited Sievers' Law pattern could not have survived in some form at the stage in Tocharian when this anaptyxis occurred (in other words, if there was no obvious pre-existing model for such a distribution), then it could provide a potentially valuable independent typological parallel. This would be highly relevant in reaching a judgement about whether the parallel behaviour of semivowels in several Indo-European languages justifies the reconstruction of such behaviour for Indo-European, or whether Sievers' Law effects are

⁹² For further discussion of the Iranian evidence see Seebold (1972:98–103), and in particular Schindler's (1977:58–9) critical summary of the relevant Avestan data. Monna (1978) adds Avestan metrical evidence.

⁹³ This change involved a non-etymological /ä/ being inserted into *-CR-* clusters in words with the structure *CVCCR-*, *CVRCR-*, or *CV_{non-ä}CR-*, e.g. **wāntre* > Toch.B *wāntäre* 'thing'. Only open syllables containing the vowel *ä* count as 'light' sequences; all other Tocharian vowels were perceived as longer or stronger and prompted the insertion of an anaptyctic vowel, e.g. IE **k^wek^wlos* > PToch. **k^wuk^w(ä)le* > Toch.B *kokale* 'wheel'. There was no such anaptyxis where the preceding syllable had the structure *Cä-* (i.e. a light sequence): cf. *yakwe* 'horse' from a PToch. form with the structure **CäCR-* and without insertion of an anaptyctic vowel. In metrical texts there was deletion of /ä/ before a resonant followed by a vowel, with the result that in forms with heavy sequences the metrical tradition preserves alternant forms with and without deletion, while forms with light sequences are invariant.

the type of phenomenon that might emerge in several branches of Indo-European independently, as in the case of Osthoff's Law.

Thurneysen (1879)⁹⁴ raised the possibility of tracing back to Sievers' Law the fact that all Latin verbs in *-iō* have light stem syllables. Perhaps the short *-ī-* in forms such as Lat. *iacīs* 'throw' can come from a monosyllabic form of the suffix **-ye/o-*, with *-ī* < **-ye-*. The long *ī* of verbs such as *farcīs* 'stuff' could derive from a disyllabic variant **-iye-*. But this supposition faces many counterexamples, where verbs with a short stem syllable were followed by long *ī*: e.g. *vēnīs* 'you come', *amicīs* 'you cover'.

2.4.1. Sequences of Syllables

Many attempts have been made to explain the exceptions in various languages. For example, it has been suggested that in Latin,⁹⁵ as well as in Gothic and Lithuanian,⁹⁶ it is not sufficient to consider the syllable immediately preceding the semivowel to predict its syllabicity. We might have to take into account the syllable before that as well; compare the short *-ī-* in Lat. *iacīs*, *iacere*, to the long *-ī-* of *amicīs*, *amicīre*, where two light syllables precede the long vowel. This is reminiscent of the way in which Gothic polysyllabic stems such as *ragineis* 'governor' seem to require us to reconstruct the disyllabic **-iye/o-* suffix, even though the sequence immediately preceding the semivowel is light (see §§2.2.4 and 2.2.6).

It seems unlikely that we should reconstruct these more complex traits for Indo-European without better comparative evidence. While it is certainly the case that polysyllabic stems in Germanic are regularly treated as heavy for the purposes of Sievers' Law, it is not obvious whether this should be regarded as a recent analogical phenomenon or as something inherited. The measure of support offered by Latin is doubtful, since the growth of the fourth conjugation may have obscured any inherited pattern. No corresponding Vedic phenomenon can be observed. It is certainly possible to conduct a meaningful study of semivowel alternations without assuming these phenomena to be of central importance.

2.4.2. Effect of the Stem-final Consonant

To complicate matters further, Meillet (1900:322–3) suggested that Latin reflexes of post-consonantal **y* were only regularly found after light *stop* final stems; after resonant final stems we typically find reflexes of **i* even after light sequences, e.g. *vēnīre*, *sārīre* 'hoe', *ōrīrī* 'rise'. On the other hand, Sommer (1914) noted that, in Lithuanian, reflexes of post-consonantal **y* are only found after light *resonant* final stems. So the patterns found in these languages cut in different directions. In both of these languages there are so many exceptions and uncertainties that their value as positive evidence is doubtful.

⁹⁴ Doctoral dissertation cited in Seebold (1972:110), *non vidi*.

⁹⁶ See Sommer (1914:73f. and *passim*).

⁹⁵ See Meillet (1900:322–3).

2.4.3. Alternation in Other Resonants?

Soon after the formulation of Sievers' Law for semivowels, it was a natural step to attempt to demonstrate the same rule-based alternations among other resonants (Osthoff 1884:404ff.). Edgerton (1934, 1943, 1962) was a strong proponent of the idea that **r*, **l*, **m*, **n*, and their syllabic counterparts behaved in a completely parallel fashion to **i*, **y*, **u*, and **w*, and his ideas were very influential.

Osthoff (1884:404ff.) cited the alternation of the Greek present-stem suffix *-ανο-/νο-* as ultimately reflecting a Sievers' Law syllabicity alternation between **ŋ* and **n̥*. We find examples such as λαμβάνω 'take' and πυνθάνομαι 'learn' with heavy sequences in the stem and a suffix *-ανο-* supposedly from **-ŋno-*. On the other hand, δάκνω 'bite' and κάμνω 'toil' have light sequences in the stem and a suffix *-νο-*. However, this is not particularly strong evidence in itself. These Greek alternations are more likely to be the result of morphological patterns than phonological ones; the double marking with infixation and suffixation in λαμβάνω etc. (cf. ἔλαβον) is not usually considered an Indo-European morphological pattern. It is conceivable that this distribution could have been phonologically motivated in the first instance among a very small number of examples; perhaps there was a form with a nasal suffix attached to a root containing a nasal which was not historically an infix. Such an example could have been reanalysed as containing a discontinuous morphological marker which then spread. Since we cannot realistically judge how many examples might have existed at the earliest stage and how many of those showed a Sievers' Law pattern, we are not in a position to assess the strength of the evidence. It is certainly clear that before using these examples to reconstruct Indo-European phonological patterns, we should at least have a clearer idea of when and how they were formed.

In Vedic the evidence is sparse and ambiguous, and we will keep our treatment fairly brief.⁹⁷ For example, the adjectival suffix *-tana-/tna-* has alternative forms with a suggestive distribution. In the only word in the Rigveda where a short vowel precedes this suffix, the *-tna-* alternant is found (*pra-tná* 'old'). The suffix *-tana-* is found only after long vowels or consonants. However, we should note that both forms of the suffix are found in *nú-tana-/nú-tna-* 'recent'. The status of these suffixes as Sievers' Law alternants is called into question by the frequent occurrence of accented *-tána-*; we cannot rule out the possibility that these originated as ablaut alternants **-téno-/*-tno-*. The distribution of these suffixes could be a secondary phenomenon.⁹⁸

Various *n*-stem forms sporadically need an extra syllable in scansion: e.g. *cyautná-* 'shaking', which may have an extra syllable twice, according to Seebold (1972:50), Arnold (1905:99) and Grassmann (1873 s.v.), but on another eight occasions is scanned as written, and *rékñas-* 'inherited property', which may occur four times with an extra syllable (by Seebold's, Arnold's, and Grassmann's count) but on another seven occasions is scanned as written (that is, seven occasions including one line which is a repetition). But as Sihler (2006:114) points out, in all the cases where a syllable

⁹⁷ For further discussion, see Seebold (1972:49ff.), and for a general assessment of the evidence of alternation in the liquids and nasals, compare Mayrhofer (1986:167).

⁹⁸ See Seebold (1972:50, 37) on this idea and a potentially similar case of the redistribution of non-Sievers' Law alternants in a Sievers' Law pattern.

is arguably missing from these words, the verses can scan as good ten-syllable *virāṣṭhana* lines without restoration.

Syllabic readings are frequently required in stems in *-man-*, *-van-*, and *-an-*, in case forms where we might expect to find the weak stem forms *-mn-*, *-vn-*, and *-n-*. There are three attested situations, outlined in Lanman's (1880:522ff.) collection of the data. Such stems may be written with *-an-* and scan as such (e.g. *dāvāne*, dat. sg.). Sihler (2006:107) counts 15 stems with this pattern (48 examples), and in 13 of the 15 stems *-an-* follows a heavy sequence. The second possibility is that *-n-* is written, but it must scan as *-an-* (e.g. instr. sg. *nāmnā* 'by name' scanned with an extra syllable). Sihler finds 59 likely examples of this pattern, and in all of them restored *-an-* follows a heavy sequence. In the third pattern of attestation, forms are written with *-n-* and scan that way (e.g. instr. sg. *mahimnā* 'greatly' scanned as written). Sihler finds 26 examples of this pattern but 16 of these follow a heavy sequence.

The first two sets of examples, on the face of things, seem to fall into a Sievers' Law pattern and that could be interpreted as positive evidence for extending Sievers' Law to **n/*ṇ*. But the third set of examples points in the other direction, since *-n-* scanned as *-n-* more often than not follows a heavy sequence.

There is one instance in the Rigveda where *rājñā* may, but need not, scan with an extra syllable, but this must be weighed against 11 examples where an extra syllable is not possible (see Sihler 2006:105–6, 133). Whether the origin of these forms is to be sought in Sievers' Law alternation is not at all clear. There does not seem to be anything resembling a general requirement to have syllabic nasals (or their reflexes) after heavy sequences. However, where these extra syllables do occur, they are typically found after a heavy sequence.

The evidence for liquids is even more limited. As Sihler (2006:7) points out, we might have expected to find disyllabic versions of the 'tool' suffixes, **-tlo-*, **-d^hlo-*, **-tro-*, and **-d^hro-*, when used with consonant-final stems, either in Vedic or elsewhere, but there is virtually no trace of such forms. The best example of alternation in liquids is *indra-*, which indisputably scans as trisyllabic on a significant number of occasions (see Arnold 1905:98 and Seebold 1972:50).⁹⁹ However, the majority of examples occur in decasyllabic hymns, and so a viable alternative would be not to restore the extra syllable in those cases. The residue of trisyllabic examples would be small. Of course, if Sievers' Law had ever applied to liquids, then this word should always have been trisyllabic, and there is no obvious mechanism for producing the disyllabic form (Sihler 2006:7).

In general, the puzzle here is that if there ever was Sievers' Law in the liquids and nasals, it is not at all clear why the reflexes of the syllabic alternants were largely replaced by non-syllabic alternants. As Sihler (2006:5) puts it: 'the elusiveness of such evidence is striking, given that in most Indo-European daughter languages the two "states" would develop not only very differently but in a fashion that would militate against later confusion of the reflexes of the two different states.' For example, in the case of the nasals, a form with post-consonantal prevocalic *-an-* where *-n-* might have been expected, from a synchronic morphological point of

⁹⁹ We also find trisyllabic *rudrā-* in a number of instances, but this is usually explained as an imitation of the behaviour of *indra-*.

view, would simply appear to have a full-grade suffix in place of a zero grade in the paradigm. An impetus to systematically replace such forms would be quite difficult to understand.

2.5. THE PROSPECT OF COMPARISON

It should be clear from what we have seen so far that there is a tempting case for comparing the similar syllabicity alternations of Vedic and Germanic and attempting to reconstruct such alternations for their common ancestor, Indo-European. Even if we cannot be completely sure of the exact conditioning factors, we could make a strong argument for a rule-governed alternation between **i* and **y*, in which the weight of the preceding sequence seems to have been important. We can be less sure of the parallel alternation of **u* and **w*, since Germanic shows no evidence to match that of Vedic. We can leave aside without prejudice the question of alternation among liquids and nasals because the evidential basis for it, in these two language groups at any rate, is very poor by comparison with the evidence for **i* and **y*.

But there is still a diachronic problem, relating not to any counterexample, but to methodology in reconstruction. Given that the converse of Sievers' Law is a purely Germanic phenomenon, any argument for an inherited Sievers' Law is substantially weakened: since the converse is proven to devocalize Proto-Germanic **i* except after a heavy sequence, it would, therefore, be sufficient on its own to produce the pattern of semivowel syllabicity alternation observed in Germanic languages. This being the case, there would be no need to have recourse to an inherited phenomenon. Furthermore, to have Sievers' Law effectively apply twice, once in Indo-European and then once again within Germanic, must certainly stretch credulity. If one of these processes had to be abandoned, it would have to be Sievers' Law in Indo-European.

However, this approach does not take into account two important points. Firstly, we have seen widespread traces of something which looks like Sievers' Law in several other Indo-European languages, though nowhere have we yet been able to parallel the quality of evidence produced by Germanic and Vedic. Secondly, and in support of the weight we should attribute to the former point, Sievers' Law alternation seems to be rare typologically. In all the general linguistic literature I have come across relating to this pattern in Germanic and relating to semivowel behaviour generally, I have never seen a close typological parallel for Sievers' Law adduced from outside Indo-European. This absence of evidence does not provide a good argument in itself by any means, but if the proposition is correct, then by its very nature there cannot be any direct evidence to investigate. The only way we could argue for the typological rarity of this pattern would be to survey semivowel behaviour in a systematic fashion in non-Indo-European languages, perhaps by looking at individual rules or constraints from the various synchronic formulations that have been proposed, and assessing the typological patterning of these components from which Sievers' Law emerges. Such a task might be tractable, but it is not something which we shall pursue here.

In light of the diachronic problem on the one hand and the typological/comparative problem on the other, pulling us in opposite directions, it seems that there would be a great deal of explanatory value in supposing that an inherited Sievers' Law served to shape the subsequent history of Germanic. For example, we might plausibly argue that it was the potentially inherited onset constraint **Cy*-which was the crucial element preventing the secondary Germanic devocalization of **i* from producing complete surface uniformity in Germanic semivowel realization. An alternative position would be to suppose that the Germanic converse was an instance of analogical remodelling rather than a sound change. In effect, we would be arguing that the Germanic converse of Sievers' Law would have been unlikely to have come about if the morphological models provided by an inherited Sievers' Law alternation had not already existed in the language.

Either of these arguments for inheritance rather than individual innovation would naturally be strengthened if more comparative evidence could be assembled. Therefore, the most constructive approach is to remain open to the possibility of comparison. However, substantial evidence is difficult to obtain and harder to interpret. The need for a detailed consideration of the evidence from Greek is clear. But before we attempt to bring Greek into the picture, we should follow through some of the ideas introduced so far, to see how the Germanic and Vedic evidence might be reconciled in practice.

2.6. INDO-EUROPEAN CONSTRAINTS?

Let us consider in general terms what we should expect our putative Germanic constraints to look like when transposed into the early history of other languages. We have already seen that one possible manifestation of a constraint against an onset **Cy* would be a lexical avoidance of this sequence word-initially (as in Gothic). In combination with a constraint on the rime, this onset constraint could lead to word-internal syllabicity alternations (see Calabrese 1994:184ff.).

In Vedic we find word-internal syllabicity alternations of **i/*y* and **u/*w*. We might hope that a synchronic analysis parallel to that of Gothic could apply in Vedic also. However, the Vedic evidence seems to contradict the assumption of a constraint against [Cy] and [Cw] syllable onsets, for Vedic exhibits a significant number of words with an initial [Cy] or [Cw] cluster (e.g. *dyaús* and *dvā-*).

So, word-internally the Gothic and Vedic phenomena seem rather similar, but word-initially Vedic and Gothic seem to be at odds.

It may be that we can reconcile the Gothic and Vedic facts if we consider the possibility that the syllabification rules of Vedic and Gothic may have diverged in certain respects. Indeed, we have already suggested that Gothic's *absolute* prohibition of word-initial **Cj* sequences cannot have been inherited from Indo-European as such, since we know on comparative grounds that such word-initial sequences must have existed.

In this context it is appropriate to consider the status of word boundaries in both languages. We know that the intervention of word boundaries in Vedic verse is more or less immaterial when assessing the weight of a syllable for the purposes of scansion. In this respect Vedic is like Greek or Latin. We cannot draw any substantive conclusions on the basis of verse evidence alone. However, it is

at least legitimate to entertain the possibility that Vedic might have allowed the same kind of syllable-parsing mechanisms to operate *across* word boundaries as are found word-internally. Such a possibility suggests a way of explaining the difference between word-initial behaviour in Vedic and Gothic.

If under certain circumstances Vedic allowed the first consonant of a word to be parsed in such a way that it belonged to the rime of the preceding syllable, then lexemes with a word-initial consonant-semivowel cluster could survive in Vedic, even in the presence of a constraint against *Cy and *Cw syllable onsets.¹⁰⁰ In Gothic, on the other hand, this does not seem to have been possible; we find no words with an initial sequence *Cj.

Leaving aside the theoretical considerations, there appears to be some telling evidence for the assumption that at least some of the processes which gave rise to Sievers' Law word-internally could also operate across word boundaries: in Vedic we find semivowel syllabicity alternations word-initially.

2.7. EVIDENCE FOR WORD-INITIAL ALTERNATIONS

In the Rigveda there is clear evidence in a small group of words for alternation in the syllabicity of semivowels which are the second member of word-initial consonant clusters. There are many uncertainties regarding the conditions under which this alternation took place, the reasons why some words show alternation and others do not, and whether this is a phenomenon that should be attributed to Indo-European rather than to Vedic alone.

2.7.1. Edgerton's Extensions of Sievers' Law

Edgerton (1934, 1943, 1962) proposed a number of extensions to Sievers' Law.¹⁰¹ He claimed that at one time Sievers' Law also operated across word boundaries. Superficially there is considerable support for his idea. Vedic does indeed exhibit semivowel syllabicity alternation word-initially. We find Ved. *dvā́-* 'two', but we also often need to restore *duvā́-* with the same meaning, in order for some verses to scan properly. Furthermore, in the Rigveda 7 out of 9 occurrences of *dvā́-* follow a word ending in a short vowel; conversely, all 35 occurrences of *duvā́-* follow a long vowel or a consonant, or are initial in the line. So, superficially, this really does look like Sievers' Law operating across word boundaries.

Such a result would make perfect sense in terms of general inherited constraints on the rime and onset of syllables. Just as these operated to exclude word-initial sequences of *consonant + j* in Gothic, so too we could analyse this behaviour as a means of avoiding the onset configuration *Cy.

¹⁰⁰ There might be other possibilities, for example, a relaxation of the *Cy- and *Cw- constraints word-initially. There are plenty of possible solutions, depending on one's model, but the problem is finding evidence for any one of them.

¹⁰¹ We have already discussed some of Edgerton's other contributions to the debate: the issue of syllabicity alternations among resonants other than *i, *y, *u, and *w, and the 'converse' of Sievers' Law in Vedic above (§§2.3.3 and 2.4.3).

However, there are several problems with this analysis. Firstly, alternation is not automatic in all words with the appropriate initial cluster. Secondly, we shall see that the conditions under which we find *dvā́-* and *duvā́-* may have more to do with the requirements of Vedic metre than with Sievers' Law (see §2.8.2).

In all that follows, we must be careful to distinguish between evidence for alternation, which is unarguable and established, and the evidence for the distribution of alternants, which has been the subject of a great deal of debate.

2.7.2. Lindeman's Law

Lindeman (1965) noticed that Edgerton's proposed word-initial alternations were subject to an interesting restriction. We find *dyaús* and *diyaús*, *dyām* and *diyām*, but we only ever find *dyúbhis*, never **diyúbhis*, even after a heavy sequence or pause (where *dyúbhis* is found 11 times out of its 19 occurrences). Similarly we find only the dual form *dyāvā*, never **diyāvā* (17 out of 19 occurrences are in positions where Edgerton would predict **diyāvā*). We only find the nom./voc. plural *dyāvas* and never **diyāvas* (even though it occurs 15 times out of its 21 occurrences in positions where **diyāvas* would be predicted).

Lindeman made the generalization that forms that are monosyllabic (when the initial cluster has a non-syllabic semivowel) tend to exhibit alternation. Forms that are polysyllables (when their initial cluster has a non-syllabic semivowel) do not exhibit any alternation, but always show non-syllabic **y*. This prediction gives surprisingly good results for forms found in the Rígvēda.

2.7.3. Some Exceptions to Lindeman's Law

Lindeman never presented his 'Law' in completely categorical terms. He freely acknowledged the existence of many counterexamples and indeed gives them in his useful lists of forms.

We find compound forms based on the alternating base form *dvā́/duvā́* such as *duvā́daśāra* 'having twelve spokes' and *duvā́daśan* 'twelve' (vs *dvā́daśan*). Contrary to the predictions of Lindeman's Law, these forms can exhibit a syllabic semivowel *u*. However, all other compounds based on *dvā́/duvā́* show non-syllabic **v*. Beside the alternating base form *dyaús/diyaús*, we find *diyukṣa-* 'heavenly'. Next to *tva-/tuva-* 'you', we find a comparatively large concentration of polysyllabic compounds with syllabic semivowels and many with alternation (e.g. *tuvā́-datta-* vs *tvā́-datta-* 'given by you'). We also find alternation in inflectional forms. Beside *śvā́/śuvā́* 'dog' we find *śuvā́nau*. Beside *dvā́/duvā́* we find locative singular *dvā́yos/duvā́yos*. Beside *tvām/tuvām* we find instrumental singular *tvā́yā/tuvā́yā*.

It is very difficult to know whether such examples are analogical creations or whether they represent an archaic state of affairs. Given that the counterexamples to Lindeman's Law are largely compounds of an alternating base form or belong to paradigms exhibiting alternating forms, it seems highly likely that many of these counterexamples are not to be taken too seriously. Given the strong tendency against variation in polysyllables, we must try to explain it.

2.7.4. Do We Need a Schindler's Law?

Schindler (1977:56–65) took Lindeman's findings to heart and incorporated them into his reformulation of Sievers' Law. He argued that Sievers' Law was too general, and proposed that weight-conditioned alternations of semivowels applied only in the *last syllable* of the word.

Schindler based this supposition on the genuine paucity of good examples of Sievers' Law variation in forms where the semivowel would not have fallen in the final syllable of the word *somewhere* in the paradigm.¹⁰² The second source of supporting evidence is Lindeman's Law. In effect, Schindler proposed that Lindeman's Law and Sievers' Law were one and the same. In both cases, all alternation was originally limited to the last syllable of the word. In monosyllabic words the last syllable is identical to the first syllable, and so here we observe word-initial syllabicity alternation. Put another way, Sievers' Law is the word-internal version of Lindeman's Law:

$$y \rightarrow i/ \left\{ \begin{array}{c} \tilde{V} \\ \tilde{V}_C \end{array} \right\} C_1 __ VC_0 \#$$

(adapted from Schindler 1977). This proposal would at least unify the phenomena of Lindeman's Law and Sievers' Law, and this analysis has been adopted in some recent accounts (see e.g. Weiss 2009:39). But it seems a somewhat 'unnatural' formulation in linguistic terms: why should there be a constraint on the onset of final syllables?¹⁰³ We should at least investigate how secure the basis for the proposal may be.

If this putative Schindler's Law applied in Vedic, then we would expect to see paradigmatic alternations word-internally. In a nominal stem with the **-ye/o-* suffix, beside a nominative singular with the shape **CeRC-īyo-s*, we would expect to find a genitive singular **CeRC-yo-syo*, e.g. beside nom. sg. *mārt-īya-ḥ* 'mortal' we would expect to find a genitive singular form **mart-ya-sya*, with a suffix *-ya-* and not *-īya-*, in spite of the preceding heavy sequence. We do not in fact find any examples of such paradigmatic alternation. We *do* of course find plenty of examples of genitive singular forms with the shape *-īya-sya* in spite of Schindler's Law, e.g. *mārtiyasya*, *kāvīyasya* 'inspired, poetical'. Schindler argues that the paradigmatic alternations predicted by his rule have been eliminated by levelling, and indeed this is in all likelihood what we would expect to happen, even if Schindler's Law were correct.

However, it is not always clear how such levelling could have taken place. We find syllabicity alternations in non-final syllables among the *-nu-* verbs, e.g.

¹⁰² Judging from Schindler's separate treatment of unverbated compounds with *vrddhi* (see §2.7.4), it appears that he would have regarded a typical compound seam as the equivalent of a word boundary for these purposes. So, it is doubtful that Schindler would have regarded a form such as *mārtiya-kṛtam* (RV 8.19.6d) as a counterexample to his generalization, either because such forms could be analogical on simplex forms, or because a compound seam counts as a sufficient boundary, so that the relevant semivowel can be regarded as lying in a 'final' syllable of sorts.

¹⁰³ It is conceivable, for example, that a footing procedure in Vedic operated from right to left, but stopped after the first foot. The alternations in the onset of the last syllable could then be seen as an interaction between syllable structure and higher metrical structure. But the fundamentally unusual nature of this proposed behaviour does not change simply because there might be a mechanism for describing it.

aś-nuv-ánti 'obtain' beside *su-nv-ánti* 'press'. Unless we are to assume that this alternation was imported from the imperfect (where the sequence *-nv-* could have occurred in the last syllable) into the present tense forms (where the sequence *never* occurs in the last syllable), then it is not clear how to explain this evidence.¹⁰⁴

Schindler is certainly right to point out that Sievers' Law alternation is almost completely confined to forms which belong to paradigms where the semivowel would have fallen in the last syllable of the word (were it not for the vocalization of said semivowel). However, it seems just as likely that this distribution is morphological in nature. A glance through the index of Seebold (1972) quickly shows that, leaving aside the question of word-initial alternations, there are very few types of Vedic morphological formations that could have been expected to yield a Sievers' Law alternation in anything other than the last suffix of the word. This is a purely morphological fact. The suffixes involved in Sievers' Law tend to be the last suffix of the word or the last suffix preceding a compound seam.

Even so, we can find a few examples of syllabic post-consonantal prevocalic semivowels in non-final syllables, in spite of Schindler's generalization. Aside from the class *V-nu-* verbs which we have already discussed, we should note that the form *martiyatvaná-* 'the ways of man' (RV 8.92.13a) must scan as five syllables not four (see Seebold 1972:294). Sihler (2006:186) points out another counter-example *poṣiyávant-* 'causing prosperity, beneficial' (RV 5.41.8a), which must scan with four syllables not three.

There is only one really viable class of evidence for Schindler's Law word-internally to my knowledge: the *vr̥ddhi* derivatives from compounds.¹⁰⁵ In these formations the root vowel of the first syllable of the entire compound is strengthened with *vr̥ddhi*. This behaviour might speak for univerbation of the compound. This being the case, we might expect that the compound seam would no longer act like a word boundary. Schindler (1977) identifies some important examples in this category which fail to exhibit the expected Sievers' Law alternation:¹⁰⁶ e.g. we find the frequent form *vaiśvānará-* 'belonging to all men, universal', which appears 61 times in the R̥gveda, consistently with non-syllabic *v* (see Seebold 1972:295). Similarly *mādhyaṃdina-* 'belonging to midday' is attested 9 times with *y* not *i* (see Seebold 1972:278). These *vr̥ddhi* derivatives fail to show the expected forms with syllabic semivowels after a heavy sequence. This contrasts with the behaviour of a non-compounded *vr̥ddhi* form such as *āriya-* (31 times with syllabic *i*, 4 times with *y*) which appears to exhibit the expected alternant before the last syllable of the word (cf. the base form *aryá-*). Schindler (1977) uses these data to conclude that 'Sievers' Law' alternation was limited to semivowels immediately preceding the last syllable of a word.

As far as it goes, this evidence seems fairly persuasive. However, we must weigh against it the fact that the adherence of Vedic *vr̥ddhi* formations to Sievers' Law is

¹⁰⁴ For Seebold's reservations on the use of the evidence of the *-nu-* verbs, see n. 52.

¹⁰⁵ We have already mentioned the dubious evidential value of the absolutes in *-tvāya* (n. 67). Historically, these seem to be the youngest and least frequent of the three absolute formations *-tvī-*, *-tvā-*, and *-tvāya* (see Seebold 1972:214). Since neither of the derivationally more basic monosyllabic absolute suffixes exhibits alternation, we cannot attribute the failure of *-tvāya* to alternate to its polysyllabicity.

¹⁰⁶ The two forms given here are the only frequent examples. There are other forms supporting Schindler's position, but they are only attested once or twice each, though when they occur they show a non-syllabic semivowel.

by no means perfect *even* among the examples where the semivowel immediately precedes the last syllable of the word. We find exceptions in both directions.

We find non-syllabic semivowels after heavy sequences, e.g. *paidvá-* ‘Pedu’s horse’ (beside *pedú-*), *tātyá-* ‘paternal’ from *tatá-* (see Seebold 1972:239), *mādhvī* ‘sweet’ (f., twice with *v*), *mādhvī* (voc. dual, epithet of the Ásvins, 3 times with *v*, 4 times with *u*; both usages appear to be from *mādhv-*). In this light it is difficult to regard as significant a form such as *kāṇvāyana-* ‘descendant of Kanva’ with its non-syllabic semivowel *v* when we note that *kāṇ(u)vá-* ‘descendant of Kanva’ also exhibits a tendency to scan with non-syllabic *v* (5 times out of 7 occurrences).

We also find syllabic semivowels after light sequences, e.g. *aucathiyá-* ‘descendant of Ucathiya-’ (see Seebold 1972:243). In this case it seems that the syllabicity of the semivowel may have more to do with the shape of the base form *ucathiya-* than with Sievers’ Law or Schindler’s Law. We find the ‘correct’ outcome in *nāriya-* ‘descendant of Nariya-’ and *vāyiya-* ‘descendant of Vayiya-’. But this can hardly be considered significant when we find the same syllabic semivowel after a light sequence in the base forms *nāriya-* (47 times with *i*, 4 times with *y*) and *vayiya-* (6 times with *i*).¹⁰⁷

A study of the historical morphology of the Vedic *vrddhi* formations might resolve some of the uncertainties here. Unfortunately, this is beyond the scope of what can be achieved here. However, we can speculate on some possible explanations for Schindler’s results. It could be that a tendency developed for *vrddhi* forms to simply *copy* the base in all respects but the root vocalism. Once Sievers’ Law stopped functioning, this would involve taking over the syllabicity of the semivowel from the base form, even if the resulting form would not have been possible when semivowel syllabicity alternation had been automatic. So, for example, the non-syllabic nature of the semivowel in *mādhyaṃdina-* could simply result from the non-syllabic nature of the semivowel in the form *madhyaṃdina-*. Perhaps the non-syllabic nature of the semivowel in *vaiśvānará-* could be explained in the same way; Sihler (2006:186) speculates that *vaiśvānará-* could be a (post-Vedic) redactional substitute for *viśvānara-*, which also occurs in the R̥gveda. We can also compare the *vrddhi* formation *vaiśya-* ‘member of the third caste’ from *viś*, which exhibits the same failure to vocalize, but cannot be explained by Schindler’s theory.

In any case we seem to find a counterexample to Schindler’s Law in *auruva-bhṛguvát-* (RV.8.102.4a), which incorporates the *vrddhi* form of the (non-Vedic) name *Ūrva-*. This must scan with six syllables, not five. Since *auruva-* only occurs in this compound form in the R̥gveda, it is difficult to see how its behaviour could be in any sense analogical.¹⁰⁸

In general terms the reliance on this one class of forms which we know to have been highly productive from Vedic into Classical Sanskrit is, in any case, a cause for some concern. More worryingly, it seems reasonably certain that these secondary derivatives with *vrddhi* are Old Indo-Aryan innovations, because we find a different process of secondary derivation in Old Iranian, showing *guṇa* in the first syllable (cf. the Avestan type *haosravan̥ḡha-*).¹⁰⁹ If we cannot reliably attribute this type to Indo-Iranian, let alone Indo-European, then the value of this evidence is clearly limited when it comes to reconstructing the rules which governed semivowel syllabicity alternation in Indo-European. In large part this theory is

¹⁰⁷ See Seebold (1972:256).

¹⁰⁸ Later on we find the name *Aurva-* as a simplex form.

¹⁰⁹ I thank Dr Elizabeth Tucker for reminding me of this point.

only bolstered by the seemingly independent and well-studied evidence for Lindeman's Law variation in monosyllables. However, when we come to look in a little more detail at the metrical evidence for Lindeman's Law, we shall see that its basis is not as secure as is usually supposed (see §2.8).

2.7.5. Lindeman's Law and Laryngeals

Supposing for a moment that we could establish a coherent analysis of word-initial syllabicity alternations in Vedic or even Indo-European semivowels, then we would have to ask at some point whether all consonant clusters would be expected to have produced identical effects. We have already seen that the behaviour of **-HT-* and **-CHT-* clusters is rather difficult to establish word-internally. We have not yet considered the properties of word-initial **CHT-* and **HT-* clusters. Insofar as laryngeals are widely considered to have been obstruents, even though the reflexes of **CHT-* sequences in the daughter languages often exhibit the reflex of a prop-vowel, it would be helpful to know whether these configurations behaved as heavy sequences for Lindeman's Law. Furthermore, Sihler (2006:175, 184–5) uses evidence for word-initial semivowel syllabicity alternations in the optative forms of the verb 'to be' to construct an interesting argument *against* assuming any kind of antiquity for Lindeman's or Edgerton's Law. Therefore, the behaviour of these sequences is of special interest.

Ringe (2006:121) suggests that a verb such as **kH₂p-ye-ti* would probably have been realized in Indo-European with a suffix [**-iye-*], since laryngeals were obstruents, and hence a consonant cluster preceded the semivowel of the suffix. Once again, we should note that this view is not necessarily incompatible with Schindler's argument that a sequence **-HT-* did not trigger the heavy Sievers' Law variant of a following prevocalic semivowel, since we are dealing in this instance with a different sequence **CHT-* + *-yV*.

In order to reconstruct a form such as **kH₂p-ye-ti*,¹¹⁰ we have to accept that a sequence of three obstruents counted as a heavy sequence; this is not an intrinsically unreasonable assumption, though—as we have seen, there is no convincing evidence for this word-internally. Furthermore, we have to assume that any surface prop-vowel that may have arisen in such complex sequences in Indo-European did not affect the computation of Sievers' Law effects. The truth of all this is not decidable a priori and we simply need to consider the evidence.

2.7.5.1. Problematical Categories of Evidence

Just as in the case of word-internal **-CHT-* sequences, laryngeals in such contexts usually yielded a short vowel both in Vedic and in Germanic, rendering the resulting reflex as a synchronically light sequence. Such an outcome would always be susceptible to reanalysis. In Germanic, **kH₂p-(i)ye-ti* is treated as containing a light sequence and yields Goth. *haffip*. This could be attributed to the inherited form having a non-syllabic **y*, or to a replacement of **kap-ye-ti*

¹¹⁰ If we prefer to use a 'monosyllabic' example (to meet the conditions of Lindeman's Law), we could discuss 1st sg. **kH₂p-iyō* or forms with secondary endings instead.

by **kap-ye-ti* (Ringe's preferred analysis, 2006:121). Therefore, such forms do not necessarily tell us anything about the inherited situation.

Vedic has the potential to offer more evidence. If we regularly found syllabic semivowels after the synchronically light reflexes of **CHT*-clusters, then we might conclude that this reflected a stage of the language when such clusters constituted heavy sequences. However, most of the Vedic evidence turns out to be just as uninformative as that of Germanic.

Just as in the case of word-internal sequences of this kind, the only truly reliable evidence is likely to come from categories that exhibit some kind of syllabicity alternation, rather than having a fixed form in all, or nearly all, instances.

It is difficult to use the evidence of the absolutes *hitva* 'having abandoned' (twice with *v*), *hitvāya* (once with *v*), *hitvī* (four times with *v*, all from **g^hH₁-*; see *LIV*² 173), and *mitvā* 'having formed' (< **mH₁-*; see *LIV*² 424–5). We need to take into account the fact that these categories barely show syllabicity alternations anyway, and are an Indo-Iranian innovation rather than being inherited from Indo-European.¹¹¹ We should therefore be cautious in deriving far-reaching conclusions from such evidence.

Forms with the suffix *-(t)van-* (f. *-varī*) always have a synchronically light sequence before the suffix, and the suffix is always monosyllabic. In consequence, it is difficult to use the evidence of *-sīdh-van-* (with *v*, Seebold 1972:297) < **sHd^h-* (cf. *sīdh-ya-ti* below, *EWAia* II 722–3) and *hi-tvan-* (with *v*) < **g^hH₁-*; it is difficult to rule out the possibility that the form of the suffix has simply become fixed and that these examples were built after this point.

Given the invariant nature of the **-ya-* suffix, it is hard to know how much significance to attribute to the evidence of the primary verb *sīdh-ya-ti* 'succeed' (with *y*, Seebold 1972:287) < **sHd^h-* (cf. *sādh-*, *EWAia* II 722–3).^{112,113}

A more complex case is presented by *antār-ikṣiya-* 'space between heaven and earth' < **-H₃k^s-* (cf. *ākṣi/īkṣ*) with a syllabic **i* in all of its three occurrences. This example is difficult to interpret. Unless we adopt Schindler's view of the behaviour of obstruent clusters, we might expect that a cluster *-ks-* would be sufficient in itself to produce a heavy sequence for Sievers' Law and so the laryngeal's role would be irrelevant. This example only assumes any importance if we adopt Schindler's position on obstruent clusters, in which case the laryngeal would be part of a sequence of three obstruents—perhaps sufficient to trigger a heavy Sievers' Law variant. But using this example is difficult in the absence of strong evidence for the behaviour of clusters of two obstruents (see §2.3.4).

2.7.5.2. More Promising Evidence

The only Vedic example that potentially offers a measure of insight into the behaviour of laryngeals in word-initial clusters is the optative of the verb 'to be'. This provides evidence for a word-initial **#HTyV-* sequence with syllabicity alternation in the semivowel. We find both *syāt* and *siyāt* from **H₁s-(i)yeH₁-t*.

¹¹¹ On the lack of syllabicity alternation in this category and its status in questions regarding what was inherited from Indo-European, see Seebold (1972:213–17) and n. 87 above.

¹¹² The shape of this root is a matter of some debate owing to attempts to relate Gk *ἰθύς* and *εὐθύς* to the Sanskrit evidence. Overall the comparison seems very difficult to make on a formal level: see *EWAia* loc. cit. with bibliography.

¹¹³ On the significance we should attach to the fixed nature of the *-ya-* suffix, see §6.3.

Sihler (2006:175 and 184–5) considers this example to be reason for doubting the possibility of anything like Sievers' Law being responsible for any of the word-initial syllabicity alternations which we see in Vedic. Insofar as we accept Schindler's view that laryngeals are obstruents and obstruent clusters do not make a heavy sequence for Sievers' Law, we should always see *syāt* and never *siyāt*. On the other hand, if obstruent clusters do make a heavy sequence, then we would expect only to find *siyāt* etc. and never *syāt*. Either way, the existence of word-initial syllabicity variation in this word appears to undermine the possibility that an inherited phenomenon is responsible. The alternants *siyāt* and *syāt* are more understandable at a time when this has initial CyV- rather than *HCy-; from this point of view it might seem likely that the alternations in this word reflect a Vedic rather than an Indo-European phenomenon.

However, a logical extension of Ringe's (2006:121) hypothesis offers an interesting alternative. This variation might be explained if a word-initial sequence of two obstruents counted as light for Sievers' Law after a syllabic segment (effectively the case made for word-internal sequences by Schindler 1977:60–1, i.e. *-V#HTyV-), but as heavy after a non-syllabic segment (i.e. *-C#HTyV-).

However, this hypothesis is somewhat difficult to accept, given the general lack of clear and convincing parallels for the behaviour of *(-)HT- sequences in general and *(-)CHT- sequences in particular. Overall, it does not seem to be possible to assemble enough clear instances of *(-)CHTyV- in the Vedic evidence to decide the question either way. Rather too many examples belong to morphological categories which do not show syllabicity alternations under any circumstances. Even among categories where alternations are found, we face the difficulty that examples would have been susceptible to reanalysis at every stage. The problem becomes even more acute if we attempt to utilize only evidence of probable antiquity. Given these problems, it seems prudent to revisit these questions in the context of the ancient Greek evidence. However, it should be clear that many of the same limitations will inevitably accompany the interpretation of Greek evidence as well.

2.7.6. A Note on *CHTR- Clusters

In a couple of cases we have inter-consonantal laryngeals followed by more than one non-syllabic segment, the second of which seems to be a non-syllabic resonant. Such environments appear to count as a heavy sequence for Sievers' Law: we find *dhiṣṇiya-* 'generous' (15 times with *i*) and *dhiṣṇiyā-* (Seebold 1972:282)—these words are used as epithets and it is difficult to be sure of their etymology, but the *i* may reflect a laryngeal if they belong with *dhiṣan-* < *d^hH₁s- (cf. Lat. *fānum*, Gk θῆός, *EWAia* I 791–2).

However, such forms cannot really serve as evidence for the weight contributed by laryngeals in consonant clusters for two reasons: firstly, if they were old enough to reflect the behaviour of laryngeals we would probably have expected a syllabification *d^hiṣṇya-,¹¹⁴ and if there was a resyllabification, then the value

¹¹⁴ This reasoning may seem circular, in that the syllabification of resonants in various contexts is precisely what we are trying to establish in this investigation. However, there seems to be good evidence that between a non-syllabic segment and *y, a resonant would be syllabic regardless of the truth or falsehood of Sievers' Law; see Schindler (1977:56–7) and Chapter 3, n. 39.

of the evidence is correspondingly diminished; secondly, and more importantly, given that there is a consonant cluster $-\text{ṣṇ}-$ in Ved. *dhīṣṇ-*, we would expect this to constitute a heavy sequence in itself regardless of the properties of the laryngeal. A similar point may be made regarding *pītriya-* 'paternal' (14 times with *i*), *pītriyāvat-* (once with *i*), and *su-pītriya-* (once with *i*). There is definitely an inter-consonantal laryngeal here, but insofar as we are willing to reconstruct $*pH_2tr\text{-}ye/o-$, we might have expected the $*r$ to be syllabic at the earliest stage rather than non-syllabic. Given that there is a non-syllabic resonant, we might have reasonably expected a consonant cluster $-\text{tr}-$ to constitute a heavy sequence for Sievers' Law in its own right, with or without the preceding laryngeal.

2.8. PROBLEMS WITH LINDEMAN'S LAW

Lindeman's Law has proven very influential and is widely assumed to have applied in Indo-European as well as Vedic. But in the context of the account of Sievers' Law presented here, Lindeman's Law confronts us with a number of inconsistencies of a theoretical nature and, from another perspective, considerable difficulties in interpreting the Vedic metrical evidence.

2.8.1. Theoretical Issues

If Lindeman is right, then this pattern of alternation only being found at the beginning of monosyllabic words poses something of a problem for our current constraint-based account of Sievers' Law. It is not at all clear why polysyllables should be able to evade a constraint on syllable structure in this way. No further light is shed on this theoretical problem by adopting Schindler's formulation.

We could attempt to explain this peculiar exception with a technical device. We could claim that in Indo-European and Vedic, polysyllables had higher prosodic structures (i.e. feet) which in some way licensed an otherwise impossible initial consonant cluster. This could be made to work: however, it would be completely ad hoc, and, as far as I know, we have no independent evidence in Vedic for such structures, and Gothic offers no comparative support; polysyllabic words in Gothic certainly do not evade the prohibition on word-initial $*Cj$ sequences.

Another possibility would be to introduce a minimal-word constraint stipulating that words have to have a certain minimum amount of structure, which the Lindeman's Law monosyllables achieve by vocalizing their initial cluster, but polysyllabic words can bypass. However, among other problems, such a stipulation would not account for the variation which we see. Such a constraint might be expected to produce a fixed form, rather than one which sometimes appears as *dyaús* and other times as *diyaús*.

Leaving aside the details, we must recognize that both of these scenarios look very different to the situation in Gothic, and different metrical structure would be presupposed. Therefore, we would face the difficulty of deciding which aspects of two apparently incompatible systems to project back into Indo-European. We would like to know what is exclusively Vedic and what is exclusively Germanic.

2.8.2. The Observations of Sihler, Horowitz, and Atkins

The interpretation of Vedic word-initial syllabicity variation has been thrown into serious doubt by the independent work of Sihler (1969, 1971, 2006), Debrunner (1935), Horowitz (1974), and Atkins (1968). Sihler (1969) shows that Edgerton's word-initial alternations and even Lindeman's more limited rules are not directly comparable to Sievers' Law after all.

We saw that there was seemingly impressive evidence showing word-initial syllabicity alternation line-initially or after a consonant or long vowel. However, Sihler has shown convincingly that this distribution need not be anything more than an artefact of Vedic metre. He argues that *any word* with the same metrical shape as an Edgerton–Lindeman variant will be distributed in Vedic verse in accordance with the conditions of Sievers' Law. Thus any word beginning with CVCV- will tend to follow a heavy syllable, regardless of its origin. Any word beginning with CCV- will tend to follow a short vowel, even if that word has initial *kṣ-* rather than initial *dy-* etc.

Hence, the evidence for Sievers' Law operating across word boundaries loses almost all of its force. Sihler (2006) has added a great deal of detail to his already strong position by issuing a point-by-point refutation of practically every piece of supposedly supporting metrical evidence used by Edgerton (1934, 1943, 1962). It is now absolutely clear that word-initial syllabicity alternations, while convincingly established for a very small set of Vedic words, are not to be restored in most cases, and, whatever the source of the Vedic word-initial semivowel alternations may have been, their distribution does not offer any support for Edgerton's theory.

However, it is easy to take Sihler's findings too far: it is impossible to deny that there *was* some word-initial alternation, even if we suppose that it was simply freely distributed within the restrictions of Vedic metre. Furthermore, Lindeman still seems to have a valid argument in that where we find variation, it tends to be among monosyllables.

Sihler has not offered a developed account of the origin of these semivowel alternants, but he believes them to be secondary creations. In his main discussion of the problem (1971:67–8, 76 n. 25), he suggests that the enclitic *t(u)va* might alternate by Sievers' Law itself, effectively constituting the last syllable of a preceding word. This seems quite plausible. He indicates that *tuvām* (acc. sg.) might have arisen next to inherited *tvām* by analogy, because the nominative singular form *tuvām* had a syllabic semivowel which derived from Indo-European **tū + a* particle **-óm*. Presumably he would have to suppose the same account for the alternations found in the ablative singular *tvát/tuvát*, locative *tvé/tuvé*, etc. However, in any real linguistic system, we might have rather expected levelling, with *v* or *uv* carried through the paradigm, rather than the creation of an alternation which, according to this account, had no prior inherited historical basis. In this case the Rigveda could be supposed to be retaining traces of an archaic stage and a more recent stage, and using forms from each freely. This seems plausible. At a later stage Sanskrit devocalized *uv > v* and *iy > y*, with some instances already visible in the Rigveda. At this point a form *tvám* arose by sound change, thus completing the parallelism between nominative and accusative singular. Of course, once again this account requires us to suppose that all alternation in these forms is a poetic

creation, since the expected outcome would simply be the elimination of disyllabic alternants.

While these examples might be explainable, the same cannot be said for the alternation which we find in forms such as *d(u)vā́* ‘two’, *s(u)váh* ‘own’, *s(i)yá* ‘this (one)’, *t(u)vác* ‘skin’ (see §2.9.1 and Jamison 1986:167–81). For *diyaús* beside *dyaús*, Sihler can only suggest that word-internal Sievers’ Law influenced word-initial sequences too.

Without a proper account of the origin of these forms, the desire to trace word-initial semivowel syllabicity alternation back to Indo-European is unlikely to wane. The wider problem also remains. Regardless of the distribution of alternants in the text of the Rígvēda, we have a contrast between the behaviour of monosyllables and that of polysyllables. This contrast does not fall out of any analysis based on syllable structure constraints parallel to those found in Germanic. This mismatch in the behaviour of Vedic and Gothic word-initial sequences undermines to some extent the possibility of reconstructing any firm rules for semivowel alternation in Indo-European, especially since Schindler’s influential account of word-internal alternation also draws heavily on the evidence of Lindeman’s Law word-initially.

2.9. EXPLORING THE MONOSYLLABICITY CRITERION

In the light of these difficulties it is worth considering whether the incorporation of the criterion of monosyllabicity into rules of word-initial syllabicity alternations may be premature. A new perspective can be gained by considering the role of Vedic formulaic composition in the distribution and preservation of archaisms. I have written at length about this elsewhere (see Barber 2012), but it may be useful to briefly summarize the main findings here. We shall see that monosyllabicity is not the only factor which distinguishes the forms which exhibit Lindeman’s Law, and there may be another possible explanation for the distribution of forms exhibiting alternations.

2.9.1. Distributional Peculiarities

Lindeman’s Law alternations occur in a very small number of archaic, largely inherited words:

d(i)yaúh ‘heaven’, *d(i)yām*;
t(u)vām ‘you’,¹¹⁵ *t(u)vát*, *t(u)vé*;
d(u)vā́ ‘two’, *d(u)vé*, *d(u)vaú*;

¹¹⁵ We will leave aside discussion of the nom. sg. *tvám/tuvám* < **tū* + particle **-óm* (see Sihler 1971:67), since *tv-/tuv-* here results from an ongoing Vedic process of devocalization in progress within the Rígvēda. Accusative *tvām/tuvám* seems to derive from **twe-* + **-om* and hence can potentially be regarded as containing the reflex of an Indo-European sequence **tw-/tuw-*.

d(u)vis 'twice';¹¹⁶
s(i)yá 'this (one)', *s(i)yā́*, *t(i)yám*, *t(i)yát*, etc.;
j(i)yók 'for a long time';
s(u)váh 'own', *s(u)vám*, *s(u)vāt*, *s(u)vaiḥ*, etc.;
j(i)yā́ 'bow-string';
ś(u)vás 'tomorrow';
h(i)yaḥ 'yesterday';
s(i)yām 'to be' (opt.), *s(i)yāt*, etc.;
ś(u)van- 'dog'.¹¹⁷

Jamison (1986:167–81) has shown that we should also add the form *t(u)vác* 'skin'; although only a monosyllabic form is continued in the Rigveda, the disyllabic reading *tuvác* is preserved at MS III 3.3 and ŚB X 4.1.16–17.

All the frequently attested, and some of the less frequently attested, examples showing an alternation between monosyllabic and disyllabic forms have another feature in common, besides 'monosyllabicity': their disyllabic alternants exhibit unusual distributional restrictions above and beyond those imposed by metre. I will argue that this proves significant when we come to consider the circumstances in which Lindeman's Law forms came to be preserved in the Rigveda.

These restrictions can be illustrated by considering the positions which Lindeman's Law forms adopt in trimeter verse, which accounts for approximately two-thirds of the Rigveda. In principle, these 11- or 12-syllable lines would allow a wide range of possible positions to be adopted.¹¹⁸ But this is not what we find. Most examples are practically restricted to verse-initial position.¹¹⁹

¹¹⁶ Sihler (1971:67–8; 2006:63–4 n. 28) has argued that Indo-Iranian, Greek, and Latin agree in having a syllabic semivowel in the words for 'two' (Gk δύω/δύο, Lat. *duo*) and a non-syllabic semivowel in 'twice' (Gk δις and Lat. *bis*), which would suggest that the distribution of semivowel syllabicity was to some extent lexicalized already in Indo-European. The overall conclusion may or may not be right, but these examples do not necessarily show it. As Sihler himself points out, the syllabicity of the semivowels in these words is *not* fixed in Vedic: 3 out of the 7 examples of *d(u)vis* are disyllabic, while there are about 30 disyllabic examples of *d(u)vā́* and 9 monosyllabic examples. The comparatively large proportion of instances of disyllabic *duvā́* might be unusual, but this does not entitle us to assume the historical priority of one or the other form without considerably more detailed argumentation.

¹¹⁷ We may add the enclitic pronouns *t(u)vā́* 'you' and *t(u)va-* 'other, another'. However, as Sihler (1971:67–8, 76 n. 25) has pointed out, it is possible that these simply alternate by Sievers' Law itself. For this reason, it seems better to leave these forms aside when considering the evidence for Lindeman's Law.

¹¹⁸ For an explanation of the structure of this verse form, see Arnold (1905:188). For our immediate purposes, we can simply note the general patterns in the distribution of examples.

¹¹⁹ So that we have a consistent basis for comparison, we will consider here only the examples where both alternants appear in trimeter verse. Since there are no monosyllabic alternatives in trimeter lines, we will not discuss: *hiyaḥ* 'yesterday' (once) and *siyām* and *siyāt*, optatives of 'to be' (each only twice and only disyllabic). There are syllabicity alternations in *śvan-/śuvan-* 'dog', but no relevant examples in trimeter verse. Furthermore, we generally leave aside forms where there are too few examples attested in trimeter verse to form a firm impression of their distribution: *suváh* 'own' (nom. sg., once), *suvā́* (nom. sg. f., once; acc. pl. n., once); *jīyā́* 'bow-string' (once); *śvās* 'tomorrow' (once); *duvís* 'twice' (three times). The examples of *suvé* (loc. sg., seven times) and *suvām* (acc. sg., six times) are difficult

diyaúḥ (17 out of 20 examples line-initially);
diyām (5 out of 6 examples line-initially);
tuvām (70 out of 76 examples line-initially);
tuvát (15 out of 18 examples line-initially);
tuvé (27 out of 33 examples line-initially);
jiyók (7 out of 7 examples line-initially);¹²⁰
suvá- (6 out of 8 examples line-initially among forms with the shape *suvVC*:
suvāt, *suvaḥ*, and *suvām*).

The restrictions on the disyllabic forms of Lindeman forms are not generally found among the monosyllabic variants of these forms. We find *dyaúḥ* in almost the full range of metrically possible positions, but with a distinct tendency to occur line-finally (22 out of 49 examples). Similarly *dyām* occurs in a wide variety of positions, but tends to occur in the ‘cadence’, i.e. the last 4 syllables of an 11-syllable line, or the last 5 syllables of a 12-syllable line (41 out of 69 examples). Both *dyaúḥ* and *dyām* can occur line-initially, but comparatively this is disfavoured. This pattern could represent the remnants of a complementary distribution between the monosyllabic and disyllabic alternants.¹²¹ There does not appear to be any clear metrical, syntactic, or phonological reason for these patterns.

Monosyllabic *tvām* ‘you’ (acc. sg.) occupies every metrically favourable position in the line, and, in contrast to *dyaús* and *dyām*, there does not appear to be any strong bias towards one position. Interestingly, while *tvát* favours the ‘opening’¹²² of the line (14 out of 17 examples), it never occurs line-initially—the favoured position of *tuvát*. We find *tvé* in the entire range of possible positions, without any particular preferences.

Monosyllabic *jiyók* only occurs twice and is line-initial.¹²³ But it is not clear whether we can draw conclusions from just a couple of examples.

Monosyllabic *svá-* (when we aggregate the data from forms with the shape *svVC*) appears in a wider range of positions and shows a preference for the end of the line (6 out of 11 examples), in marked contrast to the disyllabic alternant, which favoured the initial position.

There is evidence for a near complementary distribution between monosyllabic and disyllabic forms of *dvá-* ‘two’, though this distribution emerges only if we combine the evidence from the metrically equivalent case forms *d(u)vā*, *d(u)vé*, and *d(u)vaú*. Out of 23 disyllabic examples, 22 occupy either the first and second, or

to assess: there is no obvious distributional pattern, but, on the other hand, there are not very many examples.

¹²⁰ It seems that *j(i)yók* is from the same root as *dyaús*; the initial cluster may represent a contamination between the expected form **dyók* and the regular outcome of a Middle Indo-Aryan sound change *j(j) < dy-* —on such ‘praktitisms’ in the Rigveda, see Renou (1957:7); on the sound change, Wackernagel (1896:163) and Debrunner (1957:87). However, in that case, we would need to suppose that disyllabic *jiyók* is a replacement for **diyók*, because otherwise we would have to accept the unlikely resolution of a Middle Indo-Aryan cluster.

¹²¹ On this point, see Sihler (1971:69), but so far the phenomenon has not been explained.

¹²² In the vast majority of cases, the ‘opening’ in trimeter verses constitutes the first four or five syllables of the line, which are strongly demarcated from what follows by a caesura.

¹²³ The scansion of this form at RV 9.91.6d and 10.59.6c is ambiguous, and so will be left aside here.

the third and fourth, syllables of the line, while the 5 monosyllabic examples occur in the fifth syllable of the line or later.¹²⁴

The demonstrative pronoun *s(i)yá-/t(i)yá-* 'this (one)' behaves slightly differently from the other Lindeman pairs discussed so far, in that restrictions appear to operate regardless of the syllabicity of the semivowel. The disyllabic forms *siyá*, *siyá*, *tiyám*, *tiyát*, *tiyá*, and *tiyé* are not well attested individually. But when the data are combined, it is clear that examples outside the opening are very rare (20 out of 21 examples are in the opening). This property does not emerge in any obvious way from metrical considerations. The monosyllabic forms show a similarly restricted distribution (89 out of 91 examples in the opening).¹²⁵ Interestingly, in spite of the overlapping distributions, monosyllabic examples tend to avoid the beginning of the line, in contrast to the disyllabic alternant.

2.9.2. A More General Phenomenon?

These metrical restrictions on the disyllabic members of most Lindeman's Law monosyllable/disyllable pairs are most unusual, given that all these forms are metrically simple and easily accommodated in a wide variety of positions in trimeter verse. It is not unexpected for Rigvedic words to adopt favoured positions (see Sihler 2006:42); what remains unexplained is the remarkably consistent behaviour of this whole class of examples.

It is clear that such restrictions are not intrinsic to all disyllables of the metrical shape light-heavy. For example, non-alternating *dyúbhis* occurs 12 times and is clearly metrically unrestricted, occupying almost every position available within the limits of the metre. To take an example which is unconnected with questions of semivowel behaviour, Sihler (1969:261–2) showed that a light-heavy disyllable without an initial cluster can also show an unrestricted distribution: his example *purá* 'before' occurs in all parts of the line without any obvious preferred positions (34 examples).

Sihler (2006:10, 177) suggested that the *pāda*-initial tendency of *diyaús* might be part of a wider phenomenon characteristic of all monosyllables which can be scanned as disyllables, such as *kṣáam* 'earth' beside *kṣám*. If these unusual distributional characteristics could be shown to have a much wider currency, then they would not be likely to have any direct bearing on our understanding of the history of the Lindeman's Law forms as such. However, Sihler's claim does not seem to be borne out by the evidence. We find only 59% (20 out of 34) of such disyllables verse-initially in trimeter *pādas* and 47% (9 out of 19) in dimeter verse.¹²⁶ The mere existence of monosyllabic and disyllabic variants is insufficient to explain the skewed distribution of Lindeman's Law disyllables.

¹²⁴ The complementarity is not perfect, because there is a single line-final example of disyllabic *duvā*.

¹²⁵ This restriction to the opening was already noted by Klein (1998); see §2.9.3.2.

¹²⁶ These figures were derived by examining the distribution of the following disyllabic alternants which are found beside monosyllabic forms: *kṣáah* 'earth', *kṣáam*, *gnáam* 'wife, divine female', *gnáah*, *gáam* 'cow', *gáah*, *váah* 'water', *púuh* 'stronghold, rampart', *máam* 'me', *dháah* 'put', *páah* 'drink', *páat* 'protect', *gáah* aor. 'you go', *vaam* 'you', *bhúuh* 'be', *bhuut*, *daam* 'gave', and *daat*.

2.9.3. Formulaic Patterns

These results show that the positions adopted by disyllabic forms of well-attested Lindeman's Law forms are more restricted than might have been expected on metrical grounds alone, and there is a marked tendency for these forms to occur initially in the *pāda*. The large number of examples showing this pattern, and the contrasting behaviour of disyllables from non-Lindeman contexts, strongly suggest that this is not a chance distribution.

A metrically unmotivated tendency to favour a particular position in the line might be profitably understood as a traditional or stylistic feature. This impression is strengthened by the evidence for a partial complementary distribution of forms in *dyaús/diyaús*, *dyām/diyām*, *dvá-/duvá-*, and perhaps in *s(u)vā́*, *s(u)vaíh*, *s(u)vām*, albeit with very few examples. The fact that certain monosyllabic forms (*syá-/tyá-* and *tvát*) avoid the most favoured position of the disyllabic form points towards the same conclusion. If these are truly traces of complementary distributions, then we should look for evidence that these forms are embedded in formulaic contexts, since complementary distributions very often arise in fixed expressions which have coexisted for a long time and come to occupy distinct metrical environments.

2.9.3.1. Reconsidering *d(i)yaús*

There is evidence that at least some of these distributional patterns can indeed be explained as arising out of formulaic patterns. A substantial proportion of the occurrences of nom./voc. *dyaús* and *diyaús* 'heaven' occur in collocation with words for 'earth'. This is not inherently surprising, but just as there is a contrast in the metrical distribution of the monosyllabic and disyllabic forms in the Rígvēda, there also seems to be a contrast in the regularity with which certain collocations are used: *diyaús* occurs in lines together with a word for 'earth' in 12 out of 20 examples in trimeter verse (60%),¹²⁷ whereas such expressions account for only 12 out of 50 examples of monosyllabic *dyaús* (24%).¹²⁸ I would like to suggest that these collocational differences can ultimately help us to account for the distributional differences, and also give us an insight into the history of these forms.

Instances where *diyaús* collocates with *pr̥thivī́* in the same line account for 40% of the overall incidence of *diyaús*. This compares with only 20% of the examples of *dyaús*. In seven examples we find *diyaús* line-initially with *pr̥thivī́* immediately after the caesura:¹²⁹

diyaús $\simeq$ _ || *pr̥thivī́* (five times)

diyaús $\simeq$ _ $\simeq$ || *pr̥thivī́* (twice).

¹²⁷ With *pr̥thivī́* (8 times), with *bhūmi-* or *bhūma-* (3 times), and with *kṣāh* (once).

¹²⁸ With *pr̥thivī́* (10 times), with *bhūma-* (once), and with *kṣāh* (once).

¹²⁹ Discontinuous formulas with the second member at a metrical colon boundary are typologically quite common: cf. #*ἄνδρα* ... *πολύτροπον* 'the versatile man' (Od. 1.1), where *πολύτροπον* follows the trochaic caesura (see Watkins 1992:408). For an overview of all collocations of *dyaús* and *pr̥thivī́*, see Ditrich (2010).

Twice when paired with *pr̥thivī́*, *diyaús* is qualified as *pítah* 'father', and in one of these instances *pr̥thivī́* is qualified as *mātar* 'mother', with the resulting expression occupying all but the last two syllables of the line:

diyaus pítah || *pr̥thivī́ mātar* (RV 6.51.5a).

In another instance, *diyaús* occurs line-finally and this pairing constitutes almost the whole of the break and cadence:

|| *pr̥thivī́ (tat) pitā diyaúh* # (RV 1.89.4b).

When monosyllabic *dyaús* co-occurs with *pr̥thivī́*, we see a wider range of patterns. We find *dyaús* at various positions in the opening with *pr̥thivī́* immediately after the caesura:

dyaús — — || *pr̥thivī́* (once in RV 10.29.6b)

— *dyaús ca* — — || *pr̥thivī́ ca* (once in RV 4.51.11d)

— — *dyaús* — — || *pr̥thivī́ ca* (once in RV 10.121.5a)

— — — *dyaús ca* || *pr̥thivī́ ca* (once in RV 6.70.6a).

In one instance, *pr̥thivī́* does not immediately follow the caesura:

— *dyaús* — — || — *pr̥thivī́* (once in RV 10.88.8d).

It is more common to find patterns in which *pr̥thivī́* follows the caesura and monosyllabic *dyaús* occurs in the cadence:

|| *pr̥thivī́ utá dyaúh* (four times)

|| *pr̥thivī́ dyaús utāpah* (twice).

So, the same near-complementary distribution of *diyaús* and *dyaús* is found in discontinuous collocations with *pr̥thivī́*; the positions which *diyaús* occupies are disfavoured (though not completely avoided) by *dyaús* and vice versa. Furthermore, we only find *diyaús* in a few word-order patterns, whereas *dyaús* is more flexible and appears to be the default syllabification.

We might be tempted to assume that the near-complementary distribution of these word patterns merely follows from the near-complementary distribution of *diyaús* and *dyaús* themselves. However, construing the situation in this way seems to put the cart before the horse: I know of no mechanism whereby the distributional tendencies of these words could exist independently of the individual instances in the text. It seems far more plausible to suppose that the overall statistical distribution arises out of the disposition of formulaic collocations in which these forms participate.

From this point of view, these formulas for 'heaven and earth' can constitute at least a partial explanation for the distributional characteristics of *d(i)yaús*. It seems completely plausible that there could have been a functional split between the monosyllabic and disyllabic alternants: the disyllabic alternant could have become associated with *pādas* in which the word signifying HEAVEN was required to be line-initial; the monosyllabic alternant could have become associated with *pādas* in which the word signifying HEAVEN was required to be in the cadence

or in other positions. These kinds of dispositions of the available material are completely normal in a mature formulaic system. The original basis for these associations may have had nothing to do with the phonological environment; perhaps it was originally arbitrary. It seems very difficult to know for sure.

It should be clear from this brief treatment that considerably more work is required to fully understand the distribution of *d(i)yaús*. It would be useful to know which other formulaic systems these forms participated in, and whether the behaviour of ‘heaven and earth’ formulas was sufficient to provide a model which guided the placement of monosyllabic and disyllabic forms of *d(i)yaús* more generally.

2.9.3.2. Reconsidering *s(i)yá-/t(i)yá-*

Klein (1998) points out that all forms of *s(i)yá-/t(i)yá-* are practically restricted to *pāda* openings, and attributes this to the stylized and relatively fixed nature of the collocations in which these forms occur. We can show that the disyllabic forms of the pronoun have an even more restricted distribution than the monosyllabic forms. Klein identifies nine collocation types for *s(i)yá-/t(i)yá-*, but disyllabic alternants only occur in five of these types, and are disproportionately concentrated in Klein’s types I and V, which account for more than three-quarters of the disyllabic examples. If the disyllabic alternants had reflected the properties of Rigvedic *s(i)yá-/t(i)yá-* taken as a whole, then we might have expected these two types to account for less than one-third of the examples.

2.9.3.3. Preservation in Fixed Expressions

There are hints that formulaic patterns might help to account for the restricted distribution of further examples of the disyllabic forms of Lindeman’s Law monosyllables. Very often *tuvām* is followed by a disyllabic god’s name, usually Agni or Indra. Further study might reveal the extent to which such expressions are conventionalized or stylized.

The importance of formulaic language in the preservation of Lindeman’s Law variants may be demonstrated by Jamison’s (1986:167–81) observation that a disyllabic reading *tuvác* ‘skin’ is preserved in the Brāhmaṇic period (MS III 3.3 and ŚB X 4.1.16–17). This preservation takes place in a formulaic context, or, as Jamison also puts it, in a ‘piece of patterned traditional lore’.

2.9.4. Conclusions on the Monosyllabicity Criterion

It is clear that further study of Lindeman’s Law forms is necessary before we can claim to have a clear picture of developments. But the evidence we have so far might enable some preliminary conclusions.

Well-attested disyllabic Lindeman forms exhibit highly restricted, and sometimes demonstrably formulaic, distributions in Vedic. The alternations seem to be ancient and embedded in the formulaic language of the Rigveda. This makes it unlikely that Lindeman’s Law disyllables are the result of recent analogical or phonological innovations in Indic.

However, the formulaic character of the evidence raises a rather serious epistemological problem when we come to formulate the rules which govern semivowel syllabicity alternation. Lindeman's monosyllabicity criterion was for the most part based on a synchronic observation that alternations in the Rigveda apply to forms which are potentially monosyllabic. Given that formulaic patterns seem to have been important in preserving these alternations, we have to ask whether the small collection of alternating forms which come down to us gives an accurate reflection of the prehistoric situation.

One could easily imagine a situation in which the circumstances of preservation could be biased towards preserving monosyllable/disyllable pairs but not for example disyllable/trisyllable pairs such as **diyubhis* beside *dyúbhis*, or even **diyāvāprthivī* beside *dyāvāprthivī*, assuming for a moment that such forms could have existed at some stage. There is no indication that *dyúbhis* enters into formulaic collocations in the Rigveda, nor is its distribution in any way restricted. If there is a potential contrast between the forms which preserve syllabicity alternations and those that do not, above and beyond Lindeman's criterion of monosyllabicity, then we have to wonder whether we are entitled to automatically build monosyllabicity into our description of word-initial semivowel syllabicity alternations.

These results are preliminary in many respects and further investigation is required. But there is sufficient reason to call into question the validity of assuming a phonological criterion of monosyllabicity governing alternation, merely because the forms which alternate in the Rigveda are monosyllable/disyllable pairs. There does not seem to be a principled way to know what the criteria for word-initial syllabicity alternations might have been in the distant past. There is certainly no evidence which would lead us to think that Edgerton was correct in supposing the universal applicability of alternation at any stage. But it is equally unclear whether lexical factors could have played a role. Sihler (1969, 1971) showed clearly that we cannot use the distribution of forms in Rigvedic verse to deduce anything about any phonological factors which might have conditioned these changes. The general conclusion is that there may be a limit on what we can know, and we ought to exercise caution in projecting potentially superficial features of the Rigvedic evidence on to Indo-European phonological rules.

2.9.4.1. *Consequences for the Constraint-based Analysis*

This conclusion leaves us with a good deal of uncertainty regarding the constraint-based account of syllabicity alternations which we have been considering thus far. It seems likely that Vedic had consistent rule-governed word-internal alternations in the syllabicity of post-consonantal prevocalic semivowels. But the word-initial situation is a lot less clear. An onset constraint **Cy-* would enable us to explain a consistently syllabic outcome in word-initial clusters quite easily, but this is not what we find. A consistently non-syllabic outcome might be just about explainable with some additional assumptions. Equally, if Edgerton's system of word-initial alternations had operated, we could have supposed that the same mechanisms operating word-internally also operated across word boundaries. But Lindeman's Law and Schindler's corresponding word-internal rule would require us to make some rather elaborate and otherwise unsupported assumptions.

It does not seem that we have enough information from Vedic to resolve the inherited situation word-initially. Our only recourse is to consider the comparative evidence from Greek for Lindeman's Law and Schindler's final syllable rule, to see whether any further support may be offered.

2.10. CONCLUSIONS

In this chapter we have seen that there is good evidence for rule-governed word-internal syllabicity alternations in Germanic and Vedic. In Germanic the evidence seems to be limited to **i* and **y*, but in Vedic **u* and **w* are implicated as well. The evidence for alternation among the liquids and nasals is far less convincing. Though a number of other languages contribute some comparative evidence pointing in a similar direction, the best evidence is still to be found in these two groups. Where the evidence of Germanic and Vedic diverge we are presented with a difficulty in reconstruction, and substantial evidence from an independent source, such as Greek, becomes very desirable. Such divergences have emerged in at least two distinct areas.

There is a possibility that different sequences could count as heavy in Germanic and Vedic. Therefore, we need to remain vigilant with regard to this possibility when we look at the Greek evidence.

We also find disagreement when it comes to the behaviour of word-initial consonant-semivowel clusters. We would like to know whether such sequences exhibited alternations in Indo-European, and if so, whether this was a rule-governed process.

In the coming chapters we will examine the contribution of the ancient Greek evidence to these questions.

Chronology and Inheritance

3.1. INTRODUCTION

We have seen that there are some good reasons for wanting to reconstruct semivowel syllabicity alternation for Indo-European. The Vedic and Gothic evidence suggests that this alternation was rule governed, and that in the post-consonantal prevocalic position the weight of the preceding sequence was important. But when we attempt to refine this analysis, it is possible to arrive at rather different conclusions, depending on the confidence we place in various categories of evidence. Indeed, the very antiquity of rule-governed behaviour in this position would be open to question if we took the Indo-Iranian and Germanic phenomena to be independent innovations. The need for further comparative evidence seems clear.

Greek is a well-attested ancient Indo-European language and we would naturally hope to be able to ask whether the Greek evidence supports the idea of ‘Sievers’ Law’¹ in Indo-European, or provides reasons for doubting it. We have no guarantee that traces of Sievers’ Law would have been able to survive into our Greek texts, even assuming that it was a feature of Indo-European phonology. But if such traces do survive in Greek, then we may be able to ask various subsidiary questions about the exact formulation of this putative rule, and investigate whether anything like it continued to have relevance for any length of time in the Greek phonological system. While Greek evidence has played a certain role in discussions of Sievers’ Law in the past, it has been used in a rather inconsistent fashion, and the evidence certainly deserves revisiting.

3.1.1. The Possibility of Inheritance

Even if Sievers’ Law operated in Indo-European, it would be quite understandable if Greek had simply failed to inherit it as a rule in the grammar. We shall see that if Greek did inherit such a rule, many later phonological changes would have worked against the possibility of its prolonged retention. Since it is absolutely clear that alphabetic Greek itself does not show Sievers’ Law alternations, we must either

¹ In neutral contexts it will be useful to be able to refer to the broad class of formulations which are intended to account for the behaviour of post-consonantal prevocalic semivowels by the generic term ‘Sievers’ Law’; when Sievers’ original conditioning environment is the intended interpretation, we can refer to ‘Sievers’ Law as originally conceived’ or ‘Sievers’ Law as originally formulated’.

suppose that Greek did not inherit Sievers' Law, or that it was lost at some stage. It would be valuable to know which of these possibilities to accept.

We can, at any rate, attempt to find evidence for the functioning of Sievers' Law at some point in Greek's *prehistory*. Greek certainly inherited some forms that came to be written with *υ* after a consonant and before a vowel, and some forms written with digamma in the same environment. Similarly, although no examples of inherited **y* survive, there are sufficiently distinctive reflexes that we know Greek had some forms with **y* in the post-consonantal prevocalic position and others with **i*. Therefore, we can at least try to establish whether any rules determined the syllabicity of semivowels in this position, and whether these were ultimately inherited.

I will limit this study in various ways, partly in order to make the problem tractable, but also because the quality of the evidence varies widely. We saw in the second chapter (§2.4.3) that there is a certain limited amount of evidence for Sievers' Law alternation among the liquids and nasals. However, without prejudice to the question, I will not explore the possibility of such alternations in Greek, because the cross-linguistic support is rather slim; from a utilitarian point of view, we are primarily concerned, in the first instance, with alternations which could potentially be ascribed to Indo-European with some degree of confidence. Our focus will be rather narrow, therefore. There are sufficient complexities to deal with in looking at the *semivowel* alternations, which are well supported comparatively.

It might seem logical to begin by looking at Greek *u* and *w*, since both alternants survived well into alphabetic Greek. But, paradoxically, the very fact that **y* was lost at such an early stage in Greek means that the partially fossilized reflexes of **y* are more likely to preserve traces of the inherited situation than *w*, which survived for much longer and was subject to other influences.² Furthermore, the comparative evidence for Sievers' Law **i/*y* alternation is attested in Indo-Iranian and Germanic, whereas Sievers' Law **u/*w* alternation is a feature of Indo-Iranian alone.

Therefore I propose to limit this investigation to **i/*y* alternation. If a case for or against Sievers' Law cannot be made from the least ambiguous and potentially archaic evidence, then it does not seem fruitful to pursue the question using evidence that is more doubtful. Several important suffixes in Greek are **y* or **i* initial, so an understanding of the phonological properties of this semivowel will interact in important ways with an understanding of the morphology.

We find a number of instances of word-initial **CyV-* and **CiyV-* sequences in Greek, so it is clearly desirable to compare the situation in word-initial clusters with that of Vedic and Germanic, in the hope of developing an understanding of what the situation in Indo-European might have been.

² See Morpurgo Davies (1972:80–121) for an appraisal of the status of *u/w* alternation in Mycenaean; the evidence is by necessity very limited, but she finds no evidence for Sievers' Law in the Mycenaean period. For some (morpho)phonological complexities in the continuation of post-consonantal prevocalic **w*, see Lejeune (1972:80–4). On the chronology of the loss of **w*, see for example Lejeune (1972:174ff.).

3.1.1.1. The Contribution of Non-Indo-European Forms

Before we embark on this investigation, a brief note is in order regarding the use we may make of words (or suffixes) which seem to involve post-consonantal prevocalic **i/*y*, but lack an Indo-European etymology.

It seems unreasonable to expect such forms to conform to a putative Indo-European phonotactic constraint, though it would of course be possible for such a form to be adapted to the phonotactic rules of Greek that pertained when it was borrowed. But such a possibility is difficult to control for, since the point in the history of Greek at which a borrowing occurred is usually unknown.

On the other hand, inherited Indo-European suffixes might well continue to obey Indo-European constraints for a time, even when added to a root or stem lacking an Indo-European etymology. Such evidence is of only limited use, but cannot be completely ignored.

In general we will not dwell on obvious borrowings which merely contain phonetic sequences which resemble the outcome of Indo-European post-consonantal prevocalic semivowels. However, we will consider a certain number of cases where it looks as if an Indo-European suffix has been added to a non-Indo-European stem. Obviously the weight of such evidence cannot be considered equivalent to the contribution of forms with a potential Indo-European etymology.

3.1.2. Evidence for Sievers' Law in Greek?

The very idea that Greek evidence might contribute to the investigation of Sievers' Law at all is motivated, in the first instance, by the observation that, in at least one salient morphological category, there appears to be an alternation between post-consonantal prevocalic **i* and **y* at a prehistoric stage, and that the weight of the preceding sequence seems to play a role in determining the distribution of these alternants. The primary comparative adjectives show two distinct sets of suffixes: some with *i* and some with the reflexes of **y*. For example, the suffix **-yon-* tends to occur after light sequences:

Proto-Greek **mṛk^h-yōn* > βράσσων 'shorter' (cf. βραχύς, Av. *mərəzu-* 'short', OHG *murg(i)* 'short', Lat. *brevis* < **mreǵ^hw-i-*, etc);

Proto-Greek **kret-yōn* > κρέσσων 'stronger' (Ion. and Pi.; cf. κρατύς, Ved. *krātuḥ*, Av. *xratu-* 'magical power, will');

Proto-Greek **bṛnt^h-yōn* > βάσσων 'deeper' (cf. βαθύς, βένθος).³

The **-iyon-* suffix tends to follow heavy sequences:

Proto-Greek **swād-iyōn* > ῥδίων 'sweeter' (cf. ῥδύς, Ved. *svādúḥ*, Lat. *suāvis*, etc.);

Proto-Greek **alg-iyōn* > ὀλγίων 'more painful' (cf. ἄλγος n. 'pain, grief');

Proto-Greek **kerd-iyōn* > κερδίων 'more profitable' (cf. τὸ κέρδος; OIr. *cerd*).

³ For further discussion of the etymology of this root, see §4.8.1 (p. 160).

There are a number of issues which need resolving before we can be confident about the testimony of such examples. There are several counterexamples to this pattern. We also need to take into account questions surrounding the original form of the comparative suffix, the ablaut patterns we would expect to find in the root, and subsequent potentially analogical developments.

But before we consider such questions of detail, it is a more pressing concern to establish, in general terms, whether a distribution like this in the alphabetic period can realistically be expected to reflect an inherited Indo-European Sievers' Law distribution, even assuming that Greek inherited Sievers' Law in the first place.

It seems quite clear that many of the developments that took place in the history of Greek would have strongly interfered with the continuation of any inherited Sievers' Law distribution. It will be helpful to set the potential continuation of Sievers' Law in a historical context before attempting to evaluate a rather wider body of Greek evidence: on the one hand, consideration of the historical situation allows us to delimit the range of evidence which can possibly bear on the question, and on the other hand, we will have some more fully developed notions about how to interpret the Greek testimony when we gather it together.

3.1.3. Destructive Influences

It is not clear exactly what form we would expect Sievers' Law to take in Greek. This is, of course, intimately bound up with whatever views we adopt concerning the workings of Sievers' Law in Indo-European itself. Our assumptions about the effects which would have been produced by various phonological changes in the history of Greek are similarly dependent on the way we think about the potentially inherited situation.

During the history of Indo-European itself and later within Greek, various new instances of **i* and **y* arose. We need to consider the effects that these and other similar shifts in the population of semivowels might have had on the ability of Greek to inherit and perpetuate Sievers' Law. Insofar as we find classes of new instances of **i* or **y* which consistently fail to obey any form of Sievers' Law, this might provide chronological evidence for a period in which any inherited rules might have broken down.

Various changes also took place in the phonological environment surrounding the relevant semivowels. Some sequences which were once light became heavy, and vice versa. The resolution of syllabic liquids into sequences of vowel plus liquid would have created new heavy sequences in forms such as Myc. *wo-ze* 'work, perform' ([*worzei*])⁴ < **wrg-ye/o-* or Cretan *καρτ(τ)ων* and Doric *κάρρων* 'stronger, better' < **krt-yōn*. Potentially heavy sequences could have become light, e.g. through the reduction of certain clusters containing laryngeals, or later through the shortening of long vowels by Osthoff's Law. An assessment of the relative chronology of such changes is obviously crucial in determining the likely point

⁴ For the moment I remain agnostic about the exact stage of development represented by the Mycenaean *z*-series of signs pending further discussion later in this chapter. In interpreting this form, one also needs to take a position on the stage of development reached by syllabic liquids in Mycenaean; see §3.8.2.

at which a potentially inherited Sievers' Law might have broken down, and indeed in determining whether particular counterexamples to the various formulations of Sievers' Law are of such a nature and antiquity as to be taken seriously.

There also seem to have been innovations in the permitted structure of syllables, a factor whose predicted impact and interpretation are obviously dependent on one's theory of how Sievers' Law might have functioned at various stages in history. An example may be suggested by the different range of permitted word-initial onsets in Greek and Germanic and the differences in the behaviour of such sequences between Greek and Vedic: Greek freely allows word-initial *CyV-sequences, whereas Germanic does not, and Vedic permits these sequences to alternate with *CiyV- in some contexts, where, as we shall see, Greek does not. Changes in the structure of syllable rimes might be suggested again by the restructuring associated with Osthoff's Law. In addition, at different periods, different weight criteria may have operated.

If we believe that polysyllabic stems might have had a special treatment (as in Germanic and perhaps Latin), then it is clear that the vocalization of word-initial laryngeals in Greek would have caused many forms to acquire an extra syllable, again potentially disturbing the phonological environment, e.g. ἐλάσσων 'weaker' ← *H₁lŋg^{wh}-yos-.

In parallel with our exploration of the extent to which Sievers' Law could theoretically have continued in Greek and in what form, we should consider the distinct but related question of whether *evidence* for the operation of Sievers' Law could have survived into attested Greek; we will consider some factors which would have played a role in preserving or obscuring evidence for earlier rule-governed *i/*y alternation in our texts. For instance, problems arise in contexts where the phonological reflexes of syllabic and non-syllabic semivowels are not distinct. One other obvious source of potential difficulties lies in the possibility of analogical developments obscuring inherited patterns. For the most part these will be dealt with separately, in the context of a consideration of individual morphological categories. But sometimes our understanding of phonological developments is inextricably linked with an understanding of analogical ones, and such discussion cannot always be postponed.

3.1.4. Organization of this Chapter

Some of the destructive influences that could have affected the continuation of any potentially inherited Sievers' Law will be addressed individually during the course of our enquiry, but it is appropriate to gather together some broader themes in this chapter. To this end, we will begin by looking at the creation of new examples of post-consonantal prevocalic *i and *y during the history of Greek, the chronology of such processes, and ways in which their creation may have limited or removed the capacity to preserve potentially inherited patterns of semivowel syllabicity alternation in various morphological categories at various historical stages (§3.2–5). It will become clear that careful consideration of the chronology serves to delimit the range of morphological categories which can be used as evidence in determining the behaviour of semivowels at the earliest stages of Greek (§3.6).

We will then consider developments whose effect is to delimit the range of phonological configurations which can provide evidence about any potentially inherited semivowel syllabicity alternations. There were various phonological changes in Greek whose nature is such that the syllabicity of **i* or **y* has become difficult to determine from the evidence at our disposal; these changes impose limits on what we can know about inherited patterns in certain phonological contexts (§3.7).

Then we will look at changes that would have taken place in the environment surrounding inherited instances of **i* and **y*. The immediate phonological environment was subject to many changes in the history of Greek, and this could have had a considerable effect on any inherited rules governing the distribution of semivowel syllabicity. While many individual questions of detail will arise in other chapters as we deal with individual examples, we will discuss here some general issues raised by the loss of laryngeals in Greek and the developments affecting syllabic liquids (§3.8).

Finally, we will try to determine whether there have been important changes in syllable structure which could have interfered with the continuation of Sievers' Law. The most pertinent aspect of syllable structure is the permitted structure of syllable onsets. We investigate this by looking at the range of permitted word-initial sequences in Greek and how this bears on the question of the proper synchronic analysis of Sievers' Law (§3.9).

3.2. THE RISE AND FALL OF **i* AND **y*

When we speak of the distribution of prevocalic **i* and **y* in Greek, we must reconcile ourselves to dealing with a twofold difficulty of interpretation. On the one hand, we cannot simply read off the distribution in a straightforward fashion from the forms attested in our texts; the effects of certain sound changes need to be accounted for first. On the other hand, there is a chronological dimension to the problem: we cannot point to a stable and unchanging set of instances of **i* and **y*. These sounds had various sources and various outcomes at different periods. Any given synchronic distribution of **i* and **y* from any period in Greek is inevitably heterogeneous from a diachronic point of view. This difficulty is intrinsically bound up with the question of how long Sievers' Law might have continued to function in Greek, because each occasion on which the constituency of the semivowels changed presented an opportunity for Sievers' Law to break down or to adapt. Each such occasion may also have offered the possibility of obscuring evidence that Sievers' Law had ever operated.

All our evidence for inherited Indo-European **y* and many secondary examples of Common Greek **y* is of an indirect character, mediated by a number of obscuring sound changes. In this regard the evidence for **i*, of whatever degree of antiquity, seems far more clear-cut.⁵ But matters are complicated by the creation

⁵ There are instances of secondary devocalization of **i* in certain dialects and under certain circumstances (see e.g. §3.5.4). However, it is not usually difficult to recognize such semivowels in the historical period as being originally syllabic either by means of dialectal comparison or through etymological analysis.

of various new instances of post-consonantal prevocalic **i* caused by the loss of intervocalic laryngeals, **s*, and eventually **w*. The loss of laryngeals occurred much earlier than the other two changes, and is, therefore, intrinsically more likely to have interacted with any potential continuation of Sievers' Law. It will become clear in subsequent discussion that Sievers' Law as a living rule could not have survived late enough to be affected by the loss of intervocalic **s* or **w*.

3.3. SECONDARY **i* AND LARYNGEAL LOSS

With all this in mind, we will look first at the new instances of post-consonantal prevocalic **i* which would have been created as a consequence of the loss of intervocalic laryngeals in Greek. This may serve as a case study in the complexities of the interrelation of our historical assumptions. This development has been widely viewed as an important moment in the history of semivowel syllabicity; it will be helpful to consider its ramifications in the context of Greek phonology and morphology, with a view to highlighting some of the very general problems that beset any attempt to understand the historical behaviour of semivowels.

3.3.1. The Loss of Intervocalic Laryngeals

If we took the view that Indo-European had an entirely predictable allophonic distribution of **i* and **y* in every position in the word, leaving to one side for a moment the modifications and concerns of Lindeman, Schindler, Sihler et al. outlined in Chapter 2, then it would not be out of the question for the earliest stage of Greek to have inherited such a system more or less intact. We can imagine such a distribution being very vulnerable to disruption by all manner of subsequent phonological changes.

As Kuryłowicz (1956:171 n. 12, 341) pointed out, the early loss of intervocalic laryngeals would have resulted in a number of new instances of prevocalic syllabic **i*, since, all things being equal, we would expect a sequence **CiHV* to develop as **CiyV* regardless of what precedes.⁶ Assuming that Sievers' Law did not reapply to these new **iyV* sequences (as one tends to posit for Germanic), these new instances of **i* could have remained insensitive to the original conditions governing **i*/**y* alternation. In these circumstances, any complementary distribution of **i* and **y* would have broken down; at that stage **iyV* sequences would occur after light as well as heavy sequences. An obvious question arises as to whether this would cause Sievers' Law to break down: would the distribution of syllabicity among semivowels inevitably have become synchronically opaque and essentially unpredictable in the aftermath of such a change?

It is difficult to answer this question with anything approaching certainty. In practice such a breakdown in complementary distribution would only have had immediate consequences for a few morphological categories: roots incorporating

⁶ On general grounds (see Chapter 1, n. 4) we tend to expect the development of a homorganic subphonemic glide **y* in the sequence **Ci(y)V* < **CiHV* rather than a hiatus (i.e. **Ci.V*).

a sequence **CiH* where this could occur before a vowel, i.e. roots ending in a laryngeal before vowel-initial morphemes, adjectives with a consonant-final stem followed by the putative **-iHe/o-* suffix, and post-consonantal prevocalic instances of the zero-grade form of the optative suffix **-iH₁-*. It is worth looking at each of these categories in turn.

3.3.2. Roots with **CiH-*

We find several instances of laryngeal-final roots incorporating a sequence **CiH-* which give a newly created instance of post-consonantal prevocalic **i*, e.g. in βίος ‘life’ < **g^wiH₃-o-s* (cf. Av. *jī-ti-* < **g^wiH₃-* etc.), and probably in 3rd pl. aor. ἐπρίαντο ‘buy’ < **e-k^wriH₂-ento* (for the laryngeal cf. Ved. *krīta-*, OIr. *crenaid*, Ved. *krīnāti*).⁷ These newly prevocalic semivowels appear in the first syllable of the word,⁸ they fail to exhibit any alternation in syllabicity, and they are uniformly syllabic, regardless of the surrounding phonological environment.⁹ However, they can only be considered to have engendered a phonemic change in the inherited situation if we also suppose that syllabicity in such word-initial sequences was entirely predictable in the first instance. This would mean accepting Edgerton’s extended view of Sievers’ Law.¹⁰

Even if we assumed that Edgerton’s system functioned at some stage, then it does not seem out of the question that in examples such as βίος ‘life’ the syllabicity of the semivowel could have been specified lexically, without causing a more general breakdown in the wider morphophonemic situation. For example, it seems perfectly consistent to suppose that Vedic maintained a more or less rule-governed system word-internally for some time (though there is room for disagreement about the exact nature of the rules), while simultaneously having a much more unpredictable situation word-initially. A certain amount of specification in the lexicon needs to be assumed for Gothic also, because several morphological categories fail to obey Sievers’ Law, while in other categories it still holds good as a synchronic rule (see §2.2.4).

In any event, there is little or no evidence supporting Edgerton’s theories in Indo-Iranian, and as we shall see presently, there is less still in a Greek context.¹¹

⁷ This example is not entirely straightforward. Another approach would be to assume that forms such as the 3rd singular πρίατο or the verbal adjective ἀπρίατος are the regular outcomes of **k^wriH₂-to* and **n-k^wriH₂-to-* (see §3.5.2); the whole paradigm could be built from such forms. In that case, word-internal *pre-consonantal* **-iH-* sequences could also provide fresh instances of **i* which might or might not be subject to Sievers’ Law. However, it is equally possible to assume that πρίατο and other similar examples were rebuilt analogically from the regular outcome of the 3rd plural ἐπρίαντο < **e-k^wriH₂-ento*.

⁸ Within the scheme of possible Indo-European root shapes, we would only expect a root-internal syllabic semivowel to appear in anything other than the first syllable in roots with the configuration **HCiH-*, where the word-initial laryngeal could have yielded a vocalic reflex in Greek. However, there are no examples of such a root shape.

⁹ See §3.9.4.1 for a discussion of the examples.

¹⁰ On Edgerton’s constructs and some associated problems, see §2.7.1. Note that the assumptions of Lindeman’s Law would not entail a complementary distribution of **i* and **y* word-initially in all word shapes. For Lindeman’s Law, see §2.7.2.

¹¹ On the status of word-initial syllabicity alternation in Greek, see §3.9.

Therefore, it is not at all clear that the loss of intervocalic laryngeals from roots with a sequence *CiH- before a vowel would have presented an insurmountable problem for the perpetuation of any potential version of Sievers' Law in Greek, at least as far as word-internal sequences are concerned.

3.3.3. Nominal *-iHe/o-

A nominal suffix *-iHe/o- is widely assumed to have existed in Indo-European, though it is worth noting to begin with that we do not have any concrete evidence for this above and beyond the well-known distributional fact that there are a great number of Vedic adjectives in -iya- even after light syllables. In other words, the positing of such a suffix is primarily based on the failure of the original formulation of Sievers' Law to account for certain Vedic facts. Other solutions are possible.¹²

Even if we believe in a suffix *-iHe/o-, then a collapse of Sievers' Law follows only if we assume a complementary distribution of *i and *y to start with. If we adopt something like Seebold's account of Indo-European */*y alternation, then the only prohibited Indo-European configuration was a heavy sequence followed by *y; it would be permissible to find both *i and *y after light sequences. Such being the case, the influx of a number of fresh instances of *-iye/o- after light sequences through the loss of intervocalic laryngeals would not have significantly changed the overall phonological situation. Both *i and *y would still occur after light sequences and *y would not occur after heavy sequences. The essential component of Sievers' Law, the constraints on syllable structure and/or higher metrical structures, could have remained in place unaffected.

So the predicted impact of a phonological change such as this depends very much on the initial conditions. In turn, our reconstruction of the initial conditions derives from our interpretation of the end product of a series of such phonological changes. There is no necessary circularity here, though we run a risk in this particular instance, because all the relevant languages underwent the same loss of intervocalic laryngeals. There may simply be limits on what we can know. It is not clear that we can distinguish between a scenario in which Seebold's *Anschlußregel* with its accompanying historical phonological and morphological assumptions obtained, and one which resulted from the breakdown of a complementary distribution of *i and *y through the loss of intervocalic laryngeals. In the first case the existence of both syllabic and non-syllabic prevocalic semivowels after a light sequence results from two originally distinct suffixes *-īye/o- and *-iye/o- (the first of these relies on the reconstruction of an Indo-European phoneme *ī), which were realized as *-iye/o- and *-ye/o- respectively in this environment in Indo-European.¹³ In the second case the apparent unpredictability in this position, again, may result from two suffixes: Indo-European *-ye/o- and *-iHe/o-. The rival

¹² Seebold (1972:251–2, 272–4, 277–8, 338–42) did make a good case for recognizing at least two distinct suffixes partially confused among the Ved. -ya-/i-ya- formations (see Chapter 2, n. 53.), but it is less clear that we need to assume an intervocalic laryngeal here. See further in this section, esp. n. 13.

¹³ Seebold used various ways of describing this development, sometimes speaking of -i + -o- vs -ī + -o-, or the contrast i (ya) : ī (iya), and denoting the changes involved in abstract terms: CI + A gives CYA-, while Cī + A gives CIYA- (see e.g. Seebold 1972:322–5, 338ff.). Mayrhofer (1986:161, 165–6) also

reconstructions of Indo-European itself are rather different. In the second scenario the distribution of Indo-European **i* and **y* was entirely predictable on the basis of the surface phonology, while under Seebold's theory it was not.¹⁴

3.3.4. Optative Formations

In principle the optative would present just the sort of environment where the loss of intervocalic laryngeals could have disrupted the operation of Sievers' Law, since ablaut in the suffix would have generated examples both of the shape **-C-(i)yeH₁-* and **-C-iH₁-V-* in one and the same paradigm. Two questions therefore present themselves: did Sievers' Law apply in this category in Greek, and did the loss of intervocalic **H* actually disrupt this? It turns out to be surprisingly hard to find evidence which can help to answer either of these questions.

A configuration **-C-(i)yeH₁-* would only be expected in the 1st, 2nd, and 3rd singular of athematic verb formations with mobile accent/ablaut paradigms.¹⁵ On the other hand, the sequence **-C-iH₁-V-* would have been more restricted, only being expected in the 3rd plural active: **-C-iH₁-ent*. The evidence for Sievers' Law behaviour in this category in Vedic is not particularly strong, but nor is the possibility contradicted (see Seebold 1972:289–90 and §2.7.5.2). But what really concerns us here is whether Greek inherited such an alternation. As it happens, none of the Greek examples with relevant phonological configurations are of such a nature that we can draw firm conclusions about semivowel behaviour at an early stage.

The clearest example of an inherited optative paradigm exhibiting ablaut alternations of the type we expect is the verb 'to be'. In the 3rd plural we would have expected the creation of a new instance of post-consonantal prevocalic

argued for examples of prevocalic **i* in Indo-European which were always syllabic, deriving from the thematization of locatives in **-i* (see §2.3.2).

In such a scenario, it would be perfectly possible to *also* find new instances of **iyV* arising from the loss of intervocalic laryngeals in the daughter languages, insofar as we assume that **-ie/o-* is not merely a notational equivalent for *-iHe/o-*; Seebold (1972:338) explicitly regarded **-ie/o-* and *-iHe/o-* as distinct sequences.

¹⁴ There is no reason why Sievers' Law in some daughter languages could not have come to operate synchronically in accordance with Seebold's over-heavy syllable constraint after the loss of intervocalic laryngeals, even if the inherited Indo-European system had a complementary distribution of allophones. Indeed, one could plausibly adopt such a view of the Indo-Iranian evidence.

¹⁵ If there were acrostatic optative formations at one stage, these would have had the suffix **-iH₁-* throughout the paradigm (see Kellens 1984:362–3, Narten 1984, Jasanoff 1991). These would not have fallen within the scope of Sievers' Law and will not be discussed further here. Nor will we deal with the interesting apparent property of 'permanent syllabicity' exhibited by the thematic optatives in *-oi-* < **-o-iH₁-* (see Jasanoff 2009); although all syllabicity phenomena involving semivowels should be considered potentially relevant to any overall conception of the phonological behaviour of **i* and **y*, post-consonantal environments will remain our primary concern in this investigation, not least because this forms a coherent and tractable area for study.

We will leave aside discussion of two competing types of sigmatic aorist optatives: those with *a*-vocalism such as 3rd sg. *δεῖξαι*, pl. *-αεν*, clearly formed from the purely Greek and productive aorist formant *-σα-*, or the so-called Aeolic type sg. *δεῖξεῖε*, pl. *-ειαν* (see Blümel 1982:150–1 with literature). The origin of the second of these is unclear, but in any event they would never have involved a post-consonantal **i* or **y*.

*i: $*H_1s-iH_1-ent > *H_1s-iy-ent > \epsilon\acute{\iota}\epsilon\nu$. However, it is very difficult to know whether any disruptive effects flowed from this development. Our difficulties are twofold. The first concerns our expectations: which particular version of Sievers' Law we expect to apply. It is not clear whether an acceptance of Sievers' Law would induce us to reconstruct $*H_1s-iy\epsilon H_1-m$ or $*H_1s-yeH_1-m$. It really depends on whether we expect Sievers' Law alternations at the beginning of a word, and whether a cluster of $*HC-$ should be regarded as a heavy sequence. Both points are contentious, as we have seen.

The second difficulty concerns the Greek outcome of $*-syV-$ and $*-siyV-$ sequences. It is not at all clear that we should expect to reliably detect the difference between these two sequences in alphabetic Greek. The Greek form of the 1st singular is $\epsilon\acute{\iota}\eta\nu$, and it is not immediately apparent on a phonological level whether this comes from $*H_1s-yeH_1-m$ or $*H_1s-iy\epsilon H_1-m$. The parallel of $\epsilon\acute{\iota}\epsilon\nu$ (presumably from $< *H_1s-iy-ent < *H_1s-iH_1-ent$) suggests that a reconstruction $*H_1s-iy\epsilon H_1-m$ could yield the result we actually find.¹⁶ But if this is the original form, then the loss of the intervocalic laryngeal in the 3rd plural would hardly have been disruptive, since there was a syllabic semivowel in the singular forms anyway.

Having said this, we cannot rule out a reconstruction $*H_1s-yeH_1-m$. We very often find the development of a sequence $*-esyV-$ into a prevocalic diphthong, e.g. Hom. $\tau\epsilon\lambda\epsilon\acute{\iota}\omega$ 'complete, finish' $< *teles-ye/o-$, a denominative from $\tau\acute{\epsilon}\lambda\omicron\varsigma$ (n.) 'end, goal' etc. This argument is rendered less secure by the fact that we also find $\tau\epsilon\lambda\acute{\epsilon}\omega$ in Homer, which may represent an alternative development of $*teles-ye/o-$.¹⁷ If we were to assume that $\tau\epsilon\lambda\acute{\epsilon}\omega$ was the regular development in Homer, and that $\tau\epsilon\lambda\epsilon\acute{\iota}\omega$ is to be set aside as an Aeolic form, then explaining $\epsilon\acute{\iota}\eta\nu$ as the outcome of $*H_1s-iy\epsilon H_1-m$ would once again seem attractive, since otherwise it would be difficult to see why we do not have a 1st sg. $*e\acute{\epsilon}n$ etc. On the other hand, sufficient doubt exists over these phonological developments that I do not think certainty is possible at this stage. So we are forced to conclude either that the loss of intervocalic laryngeals would have had little effect in this particular instance, or that whatever effect there might have been could have been totally obscured by subsequent developments.

All the optatives made from athematic presents are formed from roots or stems which became vowel-final in the history of Greek, and these have been subject to a good deal of analogical interference. For example, it hardly seems likely that the regular outcome of $*d^hi-d^hH_1-(i)yeH_1-m$ was $\tau\iota\theta\epsilon\acute{\iota}\eta\nu$ 'set'. If we thought that Sievers' Law applied and that a $*-d^hH_1-$ sequence counted as heavy for such purposes, then we might have expected Greek to have $*tit^hi\acute{\epsilon}n$ (or with assibilation $*tisi\acute{\epsilon}n$) $< *d^hi-d^hH_1-iy\epsilon H_1-m$. Alternatively, if we think that a laryngeal would drop before $*y$ in an internal syllable prior to the operation of Sievers' Law (i.e. Pinault's rule; see §3.8.1), then we might have expected Ionic $*tis(s)\acute{\epsilon}n < *tit^hi\acute{\epsilon}m$.

¹⁶ We are not so fortunate as to ever find forms with a preserved hiatus, such as $*e\acute{\epsilon}n$, which would effectively prove the reconstruction $*H_1s-iy\epsilon H_1-m$. But nor is the lack of such evidence an argument against this reconstruction. Although a hiatus between a vowel and $*i$ created by the loss of intervocalic $*s$ can sometimes persist in Homer, e.g. dat. sg. $\acute{\omicron}\rho\epsilon\acute{\iota}/\acute{\omicron}\rho\epsilon\acute{\iota}$ 'mountain' $< *oresi$, it is not clear that we should expect hiatus to be reliably retained where the outcome would have been a sequence of three vowels, i.e. $*e\acute{\epsilon}n < *H_1s-(i)yeH_1-m$; in fact, I know of no such examples.

¹⁷ There has been a great deal of discussion about which outcome represents the regular development. For more extensive consideration of the development of $*-sy-$ clusters, see §3.7.1.

If we think that the laryngeal might have ‘vocalized’, then we would expect $*tit^hēn < *tit^hēn < *tit^hēyēn$. In any event it is hard to see $τιθείην$ as the regular outcome of $*d^hi-d^hH_1-(i)yeH_1-m$ under any circumstances. Indeed, most potential instances of the sequence $*-C-(i)yeH_1-$ which could have told us whether this suffix obeyed Sievers’ Law, e.g. $ἵσταίην$ ‘stand’, $διδόίην$ ‘give’, $φαίίην$ ‘say’, cannot be direct continuations of the inherited situation.

We might suppose that these $-ει-$, $-αι-$, and $-οι-$ diphthongs were analogically introduced from the plural forms such as 1st pl. $τιθεῖμεν$. But the origin of these forms is also an uncertain matter, and depends on what we think the regular outcome of a form such as $*d^hi-d^hH_1-iH_1-me-$ should be. We might reasonably expect $*tit^himen$, but it has been suggested that $τιθεῖμεν$ is actually the regular reflex. Exactly the same phonological problems apply in the root aorist optatives $θείην$, $σταίην$, $δοίην$ etc., which do not appear to represent a direct continuation of $*d^hH_1-yeH_1-m$ etc. In order to explain such outcomes, Jasanoff (1991) supposes that these are analogically based on the plural forms such as $θεῖμεν$, but instead of assuming unconventional sound changes, he posits unexpected full-grade root vocalism $*d^heH_1-iH_1-me-$, which could give $θεῖμεν$ regularly.

The reflexes of forms with $*-C-iH_1-V-$ sequences are no clearer. It is hard to accept that examples like $τιθεῖεν$ represent the regular outcome of $*d^hi-d^hH_1-iH_1-ént$ without making unconventional phonological assumptions.

On the basis of evidence like this, it is hard to say whether the loss of intervocalic laryngeals had much of an effect on the continuation of Sievers’ Law in these particular optative paradigms, since both the forms in which this intervocalic laryngeal loss occurred and the forms which could potentially have shown Sievers’ Law have all been replaced analogically. Furthermore, we have no evidence for how early this might have taken place. So, the effects of intervocalic laryngeal loss merely remain a theoretical possibility and no more.

It is far from certain whether we can make any use of the obscure Cretan sigmatic aorist optatives: 3rd sg. $κοσμησιε$ ‘order’ and $δικαχσιε$ ‘judge’ (seventh century, Dreros) and pl. $φερχσιεν$ ‘do’ (fifth century, Gortyn).¹⁸ Ostensibly, these are remnants of an athematic optative formation built directly from the original sigmatic aorist stem in $*-s-$. Provided that we assume that the final vowel denoted by $<ε>$ in $κοσμησιε$ and $δικαχσιε$ is actually long, we could take these as reflexes of forms with the disyllabic alternant of the full-grade optative suffix $*-iyeH_1-t$. However, these singular forms cannot themselves realistically go back to Indo-European: $δικαχσιε$ is built from the Doric aorist of $δικάζω$, which has the purely Greek $-άζω$ suffix; it is likely that $κοσμησιε$ is a Greek innovation, being built from the aorist of $κοσμέω$ (a denominative from $κόσμος$ which admittedly might be based on an Indo-European root). If, on the other hand, the final vowel denoted by $<ε>$ is actually short, as Jasanoff (1991:116) maintains,¹⁹ then the formation cannot go back to the usual Indo-European optative endings. For Jasanoff these forms are evidence for an alternative reconstruction of the Indo-European optative, albeit involving considerable analogical rebuilding to reach the Cretan forms. Alternatively, the influence of the imperfect or aorist 3rd singular endings

¹⁸ Possibly relevant is $διαλυσαν$ (fourth century), though the obscure context makes it unclear whether this example is a verb form at all (see Bile 1988:234–5).

¹⁹ See Bile (1988:235–7) for discussion of the vowel length in these Cretan forms.

in $-\epsilon$ might be considered (see Bile 1988:236). In any event it is difficult to see these singular forms as direct evidence for the continuation of Sievers' Law alternants in $*-iyeH_1-$. So, while it is conceivable that 3rd pl. φερχσιεν is ancient and goes back to $*werg-s-iH_1-ent$, the effect of such intervocalic laryngeal loss is difficult to assess, given the probably secondary nature of all the other evidence.

Overall, we cannot be sure what effect, if any, the loss of intervocalic laryngeals would have had on the optative, since all the relevant evidence has been obscured or is open to too many interpretations.

3.3.5. Conclusions

It does not seem that we can determine with any certainty the effects of the loss of intervocalic laryngeals on the continuation or breakdown of Sievers' Law in Greek, assuming for a moment that such a rule was inherited from Indo-European in the first place. In the relevant categories, it is only clear that the predicted effects depend very much on our starting assumptions about how syllabicity alternations operated at an early stage. Furthermore, the forms affected are rather limited both morphologically and lexically.

In the special case of the optative, where paradigmatic interference was a real prospect, the evidence is so difficult to interpret, and has in many cases been so substantially remodelled, that a clear understanding of the earliest situation is probably beyond our reach. Nevertheless, we could argue that even if we cannot have a detailed knowledge of the developments in the optative, this does not mitigate the possibility of a phonological disruption spreading from this category, prior to the analogical developments which interfered with our ability to see it. However, by the same token, we could imagine all manner of synchronic reanalyses which could have meant that the loss of intervocalic laryngeals would not necessarily have caused a knock-on effect in the distribution of semivowel alternations in other morphological systems; Sievers' Law could simply have become a morphophonemic rule restricted to certain categories. It could even have continued to function as a phonological rule operating on syllable (or higher metrical) structure, with certain forms being marked with an underlying syllabic $*i$, or with certain categories being marked as exceptional. We simply do not know.

We should notice, from an empirical point of view, that whatever stance we adopt regarding the nature of Sievers' Law in Indo-European, the loss of intervocalic laryngeals nevertheless occurred in Indo-Iranian and Germanic as well; if Sievers' Law was an inherited phenomenon, the loss of laryngeals does not seem to have acted as an impediment to its long-term survival in these languages. The consequences seem to be comparatively minimal: in Vedic this loss might be responsible for an unexpectedly large number of exceptions to the original formulation of Sievers' Law in a single category (the $-iya-$ nominals; see §2.3.2), while in Gothic a 'converse of Sievers' Law' seems to have operated, which would have devocalized any such new instances of prevocalic $*i$ after a light sequence (see §2.2.5.2). Therefore, it is not at all clear that we should automatically expect the loss of intervocalic laryngeals to have caused any greater level of chaos in a Greek context, assuming for a moment that Greek inherited some form of Sievers' Law in the first place.

This brief discussion should serve as an example of the complexity of the overall questions surrounding the inheritance, survival, and breakdown of Sievers' Law in Greek.

3.4. EVIDENCE FOR INHERITED *y

It seems relatively clear that we must recognize as a landmark for our study the period, relatively early in the history of Greek, in which inherited *y was systematically eliminated from the language, except where it formed the second part of diphthongs. It is very difficult to imagine Sievers' Law alternations surviving beyond the point at which one of the alternants was all but lost, i.e. the stage when post-consonantal prevocalic *y disappeared.²⁰

In one sense, therefore, this period represents the end of the story. But we need to deal with it first, because all earlier evidence reaches us only by passing through this point, and instances of *y can only be recognized for what they are by understanding the relevant sound changes and their distinctive reflexes.

It is important to note that the Greek evidence is rather different from that of Vedic in a number of respects. In most of the relevant formations, we find that some forms exhibit the reflexes of post-consonantal *y, and other forms have *i; we do not typically find any forms in which the syllabicity of the semivowel varies from one occurrence to another: e.g. we always find φυλάσσω 'guard' (< *p^hulak-yō) and never *φυλάκω. Therefore, the question of semivowel syllabicity alternation in Greek is not a statistical matter, as it so often is in the evidence of the Rigveda.

That being said, there are occasions where dialects disagree as to the syllabicity of a semivowel, but this is a slightly different matter. Similarly, there is sometimes orthographical alternation in the representation of instances of y which arose during the history of Greek. On both points see §3.5.4.

3.4.1. Palatalization and the Loss of *y

It is clear that inherited Indo-European post-consonantal *y was lost prehistorically from Greek with concomitant palatalization of the preceding segment. It is widely supposed that this process took place in at least two stages in some dialects,

²⁰ Two caveats are needed here. Firstly, we should allow for the possibility that even though post-consonantal *y was lost at a relatively early stage in the surface phonology of Greek, it could conceivably have continued to be present in underlying representations for some time, given that *y was not lost in all environments simultaneously and in any case was not lost in all positions in Greek (it survived as the second part of diphthongs). From this point of view it might have been possible for Sievers' Law to continue functioning at some level below the surface phonology, much as is often supposed for Gothic. This possibility is given further consideration but ultimately rejected in §3.6.

Secondly, we should note that secondary examples of *y arose under various circumstances, sometimes after the loss of Indo-European *y (see §3.5.4). It would not have been completely impossible for Sievers' Law to have been *reinvented*, either *ab initio* or from more general principles of syllable structure which somehow managed to survive the loss of their most overt exponents. However, as we shall see, this does not seem to have happened in practice.

because sequences of a plain voiceless or voiceless aspirated dental stop (< *d^h) followed by *y show two distinct reflexes in Attic, Ionic, Homer, Mycenaean, and Arcadian. Since the possibility of two phases of development clearly bears on the overall question of chronology, it certainly merits some discussion here.

The earliest phase of palatalization is represented by only a few surviving examples. In this development *ty and *t^hy merged with the outcome of *ts,²¹ giving σ in several dialects,²² e.g.:

Att.-Ion. μέσος ‘middle’ (cf. Arc. μεσακοῦθεν) < *met^hynos < *med^hynos (cf. Ved. *mádhya-*);

Att.-Ion. τόσος, Myc. *to-so* ‘so great, so many’ < *totyos (cf. Ved. *táti*, Lat. *tot*, *toti-dem*);

Att.-Ion. σέβομαι ‘feel awe’ < *tyeg^w-e/o- (cf. Σεμνός ‘holy’, Ved. *tyáj-*);

Att.-Ion. σῆμα ‘sign’ < *t^hyāma < *d^hyeH₂-m̥ (perhaps cf. Skt *dhyā-man-* ‘thought’, though see *EWAia* I 777–8).

In the relevant alphabetic Greek dialects, this development seems to be primarily confined to examples in which the *t^(h)y sequence was homomorphic (as in the examples above), or could plausibly have been perceived as such in the synchronic grammar of the relevant period. Heteromorphic clusters of *t-y and *t^h-y show a different phonological development, and it is plausible that this is because the *t^(h)-y sequence was analogically restored after the first palatalization had taken effect, or it could be that these particular sequences were maintained all along through analogical pressure.²³

These restored or maintained heteromorphic sequences underwent a second much more general phase of palatalization and loss, involving an almost complete merger of place and manner of articulation of stops followed by *y. We find that the intervocalic sequences *ky, *k^hy, *k^wy, *k^{wh}y, and heteromorphic *t-y and *t^h-y merge, giving -σσ- in Ionic, Lesbian, Thessalian, Doric, etc.,²⁴ and -ττ- in Attic and Boeotian.^{25,26} Word-initially sequences of velar or labiovelar plus *y

²¹ This merger with the outcome of *ts has given rise to the speculation that an intermediate affricate stage (*ts, *t̪s, or *tʃ) should be supposed between *t^(h)y and the final outcome s (see Lejeune 1972:106 for discussion and examples).

²² In Homer the outcome of this change alternates between -σ- and -σσ-, whereas the outcome of the later phase of palatalization is uniform -σσ- (see Lejeune 1972:103).

²³ For the contribution of the Mycenaean evidence to this particular question, see §3.6.2.

²⁴ In Aeolic and Doric there is no evidence for two phases of palatalization. For example, Boeotian μεττω (= Att. μέσους) < monomorphic *met^hye/o- < *med^hye/o- shows an identical reflex to heteromorphic examples like χαρίετταν ‘graceful’ < *k^hari-wet-ya-. Similarly, Lesbian has μέσος beside χαρίεσσα (Sapph.).

²⁵ The outcome of these clusters (which merged with the outcome of earlier *-tw-) was represented in certain alphabets of Asia Minor as Π or Φ, e.g. Ionic ἐλαϕιππος = ἐλάσσονος < *elak^h-yon-os, Pamph. ὠναϕα = Att.-Ion. (ϕ)ᾠνάσσα < *wanak(t)-ya (on the stem-final consonant, see §7.1.11.1). The obvious implication is that at the time when this orthography was established, these sounds were still distinct from geminate -σσ-.

²⁶ We also see a pan-dialectal development of *ty to σ in *pant-ya > πανσα, even though it is highly unlikely that the sequence *t-y was ever perceived as homomorphic in this word. It is much more likely that the single σ outcome is to be explained in terms of the phonetic environment. If *pant-ya went through the first palatalization but was restored to *pant-ya in time for the second palatalization, and if the second palatalization involved an intermediate stage such as *pant̪sa, or *pant̪sa, or

yield σ- or τ-, with the result determined by the same dialectal divisions as we see for word-medial sequences, e.g.:

- Att. κρείττων,²⁷ Ion. κρέσσω 'stronger' < **kret-yōn* (cf. κρατύς);
 Att. κορύττω, Ion. κορύσσω 'furnish with a helmet; equip' < **korut^h-yō* (cf. κόρυς, -ῦθος);
 Att. κηρύττω, Ion. κηρύσσω 'announce' < **kāruk-yō* (cf. κῆρυξ 'messenger');
 Ion. βράσσων 'shorter' < **mṛk^h-yōn* (cf. βραχύς, Av. *mərəzu-* < **mṛg^hu-*, Lat. *brevis* < **mreġ^hw-i-*, etc.);
 Ion. πέσσω, Att. πέττω 'ripen, cook' < **pek^w-ye/o-* (cf. aor. ἔπειψα, Ved. *pácyate*, etc.);
 Att. ἐλάττων, Ion. ἐλάσσω 'weaker' < **elak^{wh}-yōn* ← **H₁lŋg^{wh}-yos-* (cf. ἐλαχύς 'light, dexterous, little', ἐλαφρός 'id.', Ved. *laghú-*);
 Hom. σεύω 'set in motion' < **kyew-* (cf. Hom. ἐ-σύμενος, Skt *cyávate*);
 Att. τῆτες, Ion. σῆτες (*EM*), Dor. σᾶτες, Myc. *za-we-te* [*zawetes*] 'this year' < **kyā-wetes* (see §3.5.3.1).

Among the clusters involving Greek voiceless stops, the only stops to remain distinct were the labials. There is no evidence for multiple phases of development. Intervocalic **py* and **p^hy* (< **b^h*) yield -πτ-, e.g.:

- κάπτω 'gulp down' < **kap-yō* < **kH₂p-yō* (cf. Lat. *capiō* 'seize', Goth. *haffjan* 'heave');
 θάπτω 'honour with funeral rights etc.' < **d^hmb^h-ye/o-* (cf. aor. ἐτάφην, Arm. *damb-an* 'tomb', YAv. *daxma-* 'grave' < **d^hmb^hmo-*).

In clusters of voiced stops followed by **y*, differences in place of articulation are once again lost, but the quality of voicing is maintained; in general **gy*, **dy*, and **g^wy* > ζ-/ζ- in most dialects and δ-/δδ- in Boeotian, Elean, Laconian, and a few other dialects at certain periods. There is no evidence for multiple phases of palatalization, e.g.

- μέζων 'greater' < **meg-yōn* (cf. μέγας);
 νίζω 'wash hands' < **nig^w-* (cf. OIr. *-nig*, pass. *negar*);
 Ζεύς < **dyēws* (cf. Skt *dyāuḥ*);
 ζώω 'live' (Hom.) < **g^wyeH₃-* (cf. aor. ἐβίων, Lat. *vīvos*, Goth. *qius*, Skt *jīvāh*).²⁸

Resonants followed by **y* gave a variety of outcomes. The result depended on the resonant involved, the nature of the preceding vowel, and the particular dialect. A sequence *-*ry-* or *-*ny-* underwent a loss of **y* together with compensatory lengthening in a preceding **e*, **i*, or **u* vowel, except in Lesbian and Thessalian, where a geminate resonant arose without lengthening:

- Hom. ἀείρω 'lift' (with a spurious diphthong), Lesb. ἀέρρω, Alc. αὔειρόμεναι < **awer-yō* (cf. aor. ῥείρα);

**panfā*, then it is conceivable that the **t* was reanalysed as an epenthetic consonant, so that the ultimate outcome was */pansa/* rather than **panssa*.

²⁷ On the anomalous root vocalism of Att. κρείττων, see §4.8.2.1 p. 164.

²⁸ For an alternative view of the root vocalism and development of ζώω, see §3.5.2.

Att.-Ion. *κρίνω* ‘distinguish, choose’, Lesb. *κρίννω*, Thess. *κρέννω* < **krin-yō* (cf. fut. *κρίνω*);

ep. and Ion. *ξύνος* ‘common’ < **ksun-ye/o-* (cf. *ξύν* ‘with’).

After **a* or **o*, a sequence *-*ry-* or *-*ny-* underwent metathesis in descriptive terms in all alphabetic dialects:²⁹

κοίρανος ‘ruler, commander’ ← **kor-ye/o-* (cf. the personal name *Κοιρόμαχος*, Goth. *harjis*, Lith. *kārias*, etc.);

μαίνομαι ‘rage’ < **man-ye/o-* < **mñ-ye/o-* (cf. Ved. *mányate* etc.).

The same developments seem to apply to a sequence *-*my-*, but in addition *-*my-* assimilated to *-*ny-*, and we only have limited examples:

Att.-Ion. *βαίνω* ‘walk’ < **g^wam-ye/o-* < **g^wm̥-ye/o-* (cf. Lat. *veniō* etc.);

Att.-Ion. *κοινός* < **kom-ye/o-* (cf. Lat. *cum* ‘with’).

All dialects except Cypriot show the development of a geminate -λλ- from *-*ly-* sequences:

Att.-Ion. *ἄλλος*, Cypr. *ἄλος* < **alyos* (cf. Lat. *alius* etc.).

The behaviour of the remaining examples of post-consonantal *y (*-*Hy-*, *-*wy-*, and *-*sy-* clusters) involve special complications and require separate extensive discussion; see §3.7.

The variety of outcomes of post-consonantal *y in the various Greek dialects offers the prospect of understanding intermediate stages of development, their nature and chronology. But in order to have a more complete picture of the developments, we should first consider the behaviour of examples of *y which were *not* inherited from Indo-European, but developed within Greek. The similarities and differences in treatment are very instructive when it comes to the question of the chronology of the potential preservation and breakdown of Sievers’ Law. It will also prove important in deciding which morphological and phonological categories can be invoked as pertinent evidence for Indo-European alternations, even in principle.

3.5. THE BEHAVIOUR OF SECONDARY *y

We will consider here, in some detail, the behaviour of instances of *y which arose within Greek from various sources and at various stages, beginning with the reflexes of certain Indo-European sequences of **i* followed by a laryngeal word-finally (§3.5.1) and word-internally (§3.5.2). We will look at examples of de-vocalization of **i* at morpheme boundaries and consider the possibility of a Greek ‘converse’ of Sievers’ Law (§3.5.3). Then we will examine individual processes which produced secondary *y in various Greek dialects (§3.5.4). We then discuss the relevance of assibilation phenomena (§3.5.5), which resemble the outcomes

²⁹ Alternatively we could suppose an intermediate stage with palatalized resonants, *-*r’r’-*, *-*n’n’-*, etc. As it happens the particular analysis we adopt does not matter a great deal for our purposes, for reasons that will become apparent.

of palatalization in certain respects, and have been invoked as evidence for the continuation of Sievers' Law in certain studies (Hill 1967 and Nagy 1970). The overall result of these discussions will place limits both on the categories of evidence which can be deployed in understanding the inherited situation and on the chronology of the continuation of any potentially inherited rules governing semivowel syllabicity.

3.5.1. Secondary *y from Word-final *-iH₂ and *-iH₁

It is widely accepted that Indo-European sequences of word-final *-iH₂ and *-iH₁ after a stop or after a *-VR- sequence³⁰ were ultimately replaced by *-ya and *-ye respectively at a prehistoric stage of Greek. As we shall see, it is much less clear whether this represents a sound change or an analogical replacement. In any event, almost without exception these new instances of post-consonantal *y yielded the same outcomes as inherited *y,³¹ e.g.:

σά < *k^wya < *k^wi-H₂ (Megarian in Ar.Ach.757, 784; cf. Lat. *quia*, and the indefinite relative with a word-internal geminate Hom. ἄ-σσο, Att. ἄ-ττα);³²

ὄσσε n. dual 'a pair of eyes' < *H₃ek^wiH₁ (cf. OCS *oči* 'both eyes', Arm. *ač'k'* pl. 'eyes').

The most widespread source of secondary *y in Greek is to be found in the important class of feminine formations with the suffix *-ya < *-iH₂, e.g.:

ἀἰσα 'destiny, share' (Hom. etc.), Myc. *a₃-sa* < *aytya < *H₂ey-t-iH₂ (cf. αἰτέω, αἴτιος, αἰνυμαι, Osc. gen. sg. *aetis* 'part'; see Beekes 2010:43);

Ion. μέλισσα, Att. μέλιττα 'bee' < *melit-ya < *-iH₂, etc.;

Ion. πίσσα, Att. πῖττα 'pitch, resin' < *pik-ya (cf. Lat. *pix*, *picis*);

μοῖρᾶ < *mor-ya 'part, share, etc.' (cf. μέρος 'share etc.', μόρος 'fate etc.').³³

The fact that the outcomes of stop plus *y and *-VR- plus *y sequences from forms involving *-iH₂ behave in the same way as clusters containing inherited *y shows convincingly that whatever changes gave *-ye and *-ya in place of inherited *-iH₁

³⁰ Here *V represents a vowel which does not arise from a syllabic liquid or nasal; for discussion of the behaviour of examples with an apparent sequence *-aR-ya < *-R̥-ya < *-iH₂, see §3.5.1.2.

³¹ The realization of the semivowel laryngeal sequence in Greek stands in contrast to that of most other Indo-European languages; compare the *i outcomes in e.g. Ved. *dēví*, Lith. *vežanti* 'travelling', Goth. *frijōndi* 'friend' < *-iH₂. Szemerényi (1990:191–2) argues that such groups had already become *-i in Indo-European; cf. also Lindeman (1970:55) and Bammesberger (1983:232 n. 10). But this seems unlikely in view of the fact that Tocharian also shows a non-standard development of a word-final sequence *-iH₂. This develops as *-ya or *-iya, e.g. Toch.B *pontsa* < *pantya (compare Gk πᾶσα) and Toch.B *lariya* 'beloved' < *ladr-ya (compare masc. *lāre*, which is probably linked with Lyc. *lada* 'wife'). For further examples see Ringe (1996:22).

³² Possibly cf. Pi. τᾶ (Boeotian development?!).

³³ Beekes (2010:266) suggests an alternative irregular development of a *-VRiH₂ sequence in γέννᾶ 'descent, birth' which could represent *gen-ya < *-iH₂. The geminate -vv- is certainly difficult to explain in terms of the regular development of clusters involving *y; for some other attempts see Beekes *loc. cit.* with literature. But in the absence of further parallels it might be better to leave this possibility aside in our investigation, since it is clearly marginal to our immediate concerns.

and *-iH₂ had already taken place before the second palatalization and the loss of inherited *y; indeed the contrast between the two treatments of *-ty- clusters in αῖσα and μέλισσα shows that *-ya arose before the first phase of palatalization.³⁴

It is absolutely clear that very many *-ya feminine formations violate Sievers' Law. We have already seen the example of αῖσα < *aytya < *H₂ey-t-iH₂, which is a counterexample to Sievers' Law under any definition we care to devise. So we can be certain that Sievers' Law was not functioning as a generally applicable phonological rule in Greek at the time that *-iH₂ was replaced by *-ya (by whatever mechanism). *A fortiori* we may be certain that Sievers' Law was not functioning as a generally applicable phonological rule in Greek at the time of the first palatalization and the second palatalization with the associated loss of all post-consonantal instances of *y. We may add many further counterexamples:

πᾶσα < *pansa < *pant-ya;

οὖσα 'being' (f.) < *ont-ya < *H₁s-ont-iH₂ (with an analogical smooth breathing);

feminine thematic participles Att.-Ion. -ουσα, Lesb. -οισα, etc. < *-onsa < *-ont-ya;

μοῦσα 'muse' (Hom. etc.; cf. Aeol. μοῖσα, Dor. μῶσα < *mont^(h)-ya, whatever the ultimate etymology may be—see Beekes 2010:972–3);

βῆσσα 'glen', probably from *g^wāt^h-ya < *g^weH₂d^h-iH₂ (cf. Ved. gāhate 'plunge', Av. vi-gāθ- 'ravine', etc.);³⁵

γλῶσσα 'tongue' < *glōg^h-iH₂(?) (cf. Ionic γλᾶσσα, γλωχίς < *glōk^h-iH₂-s; see e.g. Beekes 1969:155–6, 2010:278).^{36,37}

³⁴ It should be noted that it is not all that clear why the *-ty- cluster in *ayt-ya (> αῖσα) is treated as a monomorphemic sequence. Yet we must suppose that at some stage *aytya became unanalysable in the synchronic grammar, if we are to maintain our standard explanation of the two different outcomes of *-t(-)y- sequences in Attic-Ionic, Homer, and Mycenaean.

³⁵ Rather than being cognate with βαθύς 'deep', see §4.8.1.

³⁶ The etymology of γλῶσσα/γλᾶσσα is unknown. It seems impossible to explain this dialectal alternation as the outcome of ablaut in a root containing a laryngeal such as *glōH₂g^h-iH₂/*g^h!H₂g^h-(i)yeH₂-, since the form which generalized the zero grade would have yielded *glāssā- > Ion. *glēssē-. Beekes (1969:155–6) argues that the stems γλωχ- and γλᾶχ- originally belonged to a root noun with paradigmatic ablaut: nom. sg. *glōk^h-s, gen. sg. glak^h-ós; cf. the plural form γλῶχες 'beard of corn' (Hes.Sc.398). A synchronic parallel for such a pattern of root vowel alternation may be found if we can assemble a paradigm πτώξ 'cowering animal, i.e. a hare' (Hom.) ~ acc. πᾶχα (A.Ag.137). Of course, if there was paradigmatic ablaut of this nature in the *-ya feminine itself, then we could explain away γλῶσσα as a counterexample to Sievers' Law, by assuming levelling of *y from parts of the paradigm where a light sequence preceded the suffix. But this is a rather difficult stance to maintain, and it seems more than likely that γλῶσσα constituted a counterexample to Sievers' Law at some stage in its history.

³⁷ We can perhaps also add to this list ἔπιβδᾶ 'the day after the festival' (Pi. etc.), which has been taken to contain *epi- and an assimilated form of the zero grade of the 'foot' root, i.e. *epibd- < *epipd-; cf. Ved. upa-bd-á- 'trampling'. The formation could be a *-ya feminine, if we cannot account in any other way for the final short -ᾶ and feminine gender (see Schwyzler 1953:457). There is no trace of a *y, but it is conceivable that *epi-bd-ya would yield ἔπιβδᾶ, perhaps via an intermediate stage *epibzda. Overall, the formation is rather unclear, as is the semantic development. This form would not be a counterexample to Sievers' Law if we accepted Schindler's stipulation that a sequence of two stops did not constitute a heavy sequence.

Under the assumption of a sound change $*-iH_2 > *-ya$, a number of possible explanations of these counterexamples to Sievers' Law suggest themselves. We could assume that Sievers' Law simply failed to operate at any stage in Greek, either because it was not a feature of Indo-European, or because it was not inherited by Greek. Alternatively, it could be that these new instances of post-consonantal $*y$ only arose after Sievers' Law had ceased to operate, or even that their creation caused the breakdown of Sievers' Law.

Deciding which of these scenarios to accept will necessarily involve considering whether there is any evidence for Sievers' Law in Greek outside the feminine formation. However, it does not seem particularly productive to attempt a comprehensive treatment of the $*-ya$ feminine formation itself, since further counterexamples to Sievers' Law in this category will hardly help to resolve the fundamental questions of chronology and what was inherited from the parent language; as we shall see, such limited positive evidence for syllabic variants as does exist in this category (such as $\pi\acute{o}\tau\nu\iota\alpha$ 'mistress') is susceptible to rather too many different interpretations to be treated as a straightforward argument in favour of Sievers' Law.

3.5.1.1. Analogical $*-ya$?

The whole problem assumes a rather different complexion when we consider the possibility that the replacement of Indo-European $*-iH_2$ with $*-ya$ in the nominative was not effected through a sound change, but instead by an analogical process. There are a number of theories of this kind, and we cannot consider them all in detail. But it is worth looking at one such proposal, to see how it might work.

Ruijgh (1992: esp. 92–3, 78–9) argued that the regular treatment of the sequence $*-iH_2$ is represented by just three surviving (isolated) examples: $\pi\acute{o}\tau\nu\iota\alpha$ 'mistress' (Myc. *po-ti-ni-ja*) < $*potniH_2$ (cf. Ved. *pātnī* 'mistress, goddess', Y.Av. *paθnī-*, and Old Lith. *vieš-patni* 'housewife'); $-\tau\rho\iota\alpha$ < $*-tr-iH_2$ (f. of the $-\tau\rho$ agent suffix); and $\mu\acute{\iota}\alpha$ < $*smia$ < $*sm-iH_2$ (f. of $*sem-$ 'one').

Ruijgh draws the conclusion that every nominative in $*-ya$ is an innovation produced by levelling from cases with the full-grade suffix $*-yā-$ < $*-yeH_2-$: i.e. $-\pi\epsilon\zeta\check{\alpha}$, in e.g. $\acute{\alpha}\rho\gamma\upsilon\rho\acute{o}\pi\epsilon\zeta\alpha$ 'silver-footed' < $*-ped-ya$, represents an innovation, and replaces the regular form $*-pediya$ < $*-ped-iH_2$, with $*y$ spread from the oblique stem $*-ped-yā-$ (< $*-ped-yeH_2-$). The reason that $*y$ rather than $*i$ is so prevalent in the feminine is to be found in Schindler's (1977) stipulation that Sievers' Law alternations only took place in the final syllable of a word. Although the feminine originally had proterokinetic inflection, with a genitive $*-yéH_2-s$, this was replaced at an early stage in Greek by hystero-kinetic endings, giving gen. sg. $*-yéH_2-os > *-yaas > *-yās$. In consequence, for Ruijgh, there was a stage where the full-grade $*-yéH_2-$ suffix never constituted the final syllable, and this coincided with a stage at which Schindler's rule pertained; hence, only $*y$ was found in such cases. In consequence, he reconstructs a paradigm with nom. sg. $*pant-iya$, and gen. $*pant-yaas$, which was then levelled in favour of forms with $*y$.

Leaving aside the obvious epistemological problem that Schindler's final-syllable rule allows us to explain almost any configuration of facts with equal ease (which does not of course rule out the possibility that it is right), Ruijgh's chronological assumptions require Schindler's version of Sievers' Law to have continued

to apply in Greek until hysterokinetic endings were generalized. On the other hand, it must stop applying when *-yaas contracts. Such a chronology seems problematical, given that even if Schindler's final-syllable rule ever applied, it is very likely that its outcomes were susceptible to paradigmatic levelling already in Indo-European; it would be most unexpected to find Schindler's rule still applying in the history of Greek in its original form. This point notwithstanding, if we wanted to follow Ruijgh's theory, then the 'freezing' of the *-yeH₂- (rather than *-iyeH₂-) suffix in the paradigm would have to be supposed to have taken place in Greek rather than Indo-European itself, since any reconstruction of a non-alternating *-yeH₂- suffix would be contradicted by the syllabicity alternations in this formation in Vedic, which take place in exactly the forms where we would expect Sievers' Law to apply, though admittedly the evidence for Sievers' Law conditioning of this alternation is not particularly strong.³⁸ But variation of any sort would be unexpected if Ruijgh's conjectures were applied to Indo-European.

For Ruijgh, the reason why πότνια, μία, and -τρια did not suffer such a replacement in the nominative is that the oblique cases had an inherited syllabic semivowel, i.e. gen. sg. μιᾶς < *sm-iyeH₂-os etc. This syllabic semivowel need not have anything to do with Sievers' Law, but instead relies on a putative rule of syllabification which Ruijgh reconstructs for a phase of Indo-European preceding the operation of Sievers' Law. For Ruijgh, an Indo-European sequence of a post-consonantal *r, *l, *m, or *n followed by a prevocalic semivowel (*y, *w) was realized as *CRiyV- rather than the outcome which is usually expected, i.e. *CRyV-.³⁹ For Ruijgh, this rule precedes even Schindler's basic syllabification rule (see n. 39) and predicts that it is the semivowel which should be syllabic in such sequences. The prime example of this rule is the genitive of the numeral 'three', which he reconstructs as *triōm (> τριῶν), rather than *tryōm, which would be predicted by Schindler's rule.

This whole line of explanation runs into the obvious problem that we have a great many clearly inherited examples with a syllabification *CRyV-, and no clear means by which such a syllabification could have been produced analogically. It is simply not believable that examples such as μᾶνομαι 'be furious' (< *m̃ñ-ye/o-), ἄλλομαι 'leap' (< *sl̃-ye/o-), and βάλνω (< *g̃m̃-ye/o-) are comparatively recent innovations within the history of Greek, replacing Indo-European *m̃ñ-iye/o-, *sl̃-iye/o- and *g̃m̃-iye/o-, as Ruijgh (1992:80) maintains.

If the stem in ἄλλομαι goes back to *sl̃-ye/o- (see §7.2.1.1), which replaced Ruijgh's putative *sl̃-iyo-mai, it would have to represent an innovation based on the

³⁸ In Vedic, beside the invariant nom. sg. -ī, we find monosyllabic and disyllabic forms of the suffix in the gen./loc. dual, the instr. sg., the dat. sg., the gen./abl. sg. and the loc. sg. (see Seebold 1972:184ff.). After light sequences -yāḥ is found 21 times, while forms with -iyāḥ are found only 9 times. This is encouraging evidence in favour of Sievers' Law. But after a heavy sequence, both -yāḥ and -iyāḥ are found. The form -yāḥ (17 times) is actually more frequent here than the forms with -iyāḥ (12 times).

³⁹ Schindler (1977:56-7) proposed that the syllabicity of resonants could be determined by the iterative right-to-left application of the following rule:

$$\left[\begin{array}{c} +\text{son} \\ -\text{syll} \end{array} \right] \rightarrow \left[+\text{syll} \right] / \left\{ \begin{array}{c} [-\text{syll}] \\ \# \end{array} \right\} \text{ ______ } \left\{ \begin{array}{c} [-\text{syll}] \\ \# \end{array} \right\}$$

This formulation has proven very influential and predicts Indo-European syllabification patterns very well in most cases. We will refer to this as Schindler's basic syllabification rule.

aoist ἄλτο (Hom.). But we normally see **-ye/o-* presents built from *s*-aoists in Greek. It seems out of the question that βάλνω is a replacement for **g^wm-iyō* based on the aorist, since the aorist is built from a different stem **g^weH₂-* (> ἔβην, cf. Ved. *á-gā-m*). It is conceivable that the stem **g^wm-* was imported from elsewhere, e.g. **g^wm-ske/o-* (> βάσκω), but it is completely unclear why this would happen in preference to rebuilding the present from the aorist, which is a regular occurrence. The fact that the allomorphy in this verb is paralleled elsewhere in Indo-European makes it practically certain that it is inherited, and the fact that it is maintained in Greek strongly suggests that the kind of extensive remodelling required by Ruijgh's theory is not a realistic prospect.

All in all, Ruijgh's *triyom* rule, as he calls it, seems very difficult to believe. The example of τριῶν itself is better explained as an analogical spread of the root **tri-* from dative **tri-si*, acc. **tri-ns*, the adverb τρίς, ordinal τρίτος, etc. As a result, we need a better explanation of πόντια, -τρια, and μία.

3.5.1.2. The Regular Phonological Development of **-CRiH₂*

If an analogical development is difficult to accept, there might still be a way to understand the different outcomes of **-iH₂* sequences in Greek in terms of regular sound change. The second half of Peters' (1980) work is devoted to the treatment of the sequence **-CRiH₂* and the necessity of distinguishing between three treatments: the πόντια type, the ἄρουρα type (cf. Myc. *a-ro-u-ra*, < **arowrya* according to Peters), and the δρόκαινα and χίμαιρα type, from **-an-ya*, / **-ar-ya*, with **-an-* from **n* and **-ar-* from **r*.

In Peters' analysis, the regular phonetic treatment of **-CRiH₂* is **-CRya* (just as after stops), but this new **y* does not prompt the vocalization of the preceding resonant in the way in which Indo-European prevocalic **y* did (cf. **mn^o-ye/o-*), and this new **y* was lost in this environment without a reflex. This proposed outcome is only directly represented in a couple of potential examples, such as ἄρουρα 'arable land'. This is analysed as a feminine derivative in **-ya* from an *r/n*-stem verbal noun **H₂erH₃-wr* / **H₂erH₃-wen-*, unattested in Greek, but found in Mlr. *arbor* < **arwr* and OIr. gen. *arbe* < **arwens*, Ved. *urvārā* 'arable land', etc.⁴⁰ It seems better to take ἄρουρα as a **-ya* formation **aro-wr-ya*, rather than a direct reflex of **H₂erH₃-wr*, since we would otherwise expect final *-ar*; cf. ἄλεαρ 'wheat flour' < **alewar* < **H₂lH₁wr* (cf. Arm. *aliwr* 'flour'), or φρέαρ 'well, spring' < **p^hrēwar* < **b^hreH₁wr* (cf. Arm. *albiwr*, Goth. *brunna*).⁴¹ Another potential example of the ἄρουρα type of development is ἔχιδνα 'viper', if it is a **-ya* derivative from **ek^hid-no-s* (cf. ἔχις 'viper').⁴²

Peters (1980:139ff.) explains the syllabic semivowel reflex in πόντια, -τρια, and μία as an epenthesis in the expected cluster **-CR-yV-* > **-CRiyV*, which only occurred where there was a transparent morpheme boundary in the cluster. The

⁴⁰ This nominal formation would in turn be based on the verbal root **H₂erH₃-*, which gives ἄρῳα 'plough' etc. See further in Peters (1980:143ff.) and Schrijver (1991:250).

⁴¹ Ruijgh (1983) regarded ἄρουρα not as a **-ya* feminine, but an ancient collective in **-eH₂*, with the expected final long *-ā* replaced by short *-ā* under the influence of αἶα 'earth', γαῖα 'id.' (and perhaps αἶσα and μοῖσα in the sense 'part, share, piece' used of ground). This is certainly a possibility to be considered, but, of course, this would not oblige us to accept Ruijgh's wider theory.

⁴² See Beekes (2010:489) for some doubts about this analysis.

synchronic structure of **arowrya* was obscure, as it was not in any sense a feminine, but rather a doublet of **arowr* (see Peters 1980:146); in consequence, there was no epenthesis. In the case of -τρία and μία (< **sm-ya*) the morpheme boundary remained clear and this triggered epenthesis. The same is admittedly more difficult to argue for πόντια, since there is no stem ποντν- elsewhere in Greek. On the other hand, it is clearly a derived feminine related to **pótis* ‘master’ > Gk πόσις (cf. Ved. *páti*-, Av. *paiti*-, Toch.A *pats*, etc.). From that point of view, **pot-n-ya* was probably always segmentable and seen as containing the *-ya suffix, even if the identity of the element *-n- was, and still is, obscure.⁴³

On this analysis the δράκαινα and χίμαιρα type of development would have to be a more recent analogical creation from stems with allomorphs terminating in -αν- and -αρ-: e.g. χίμαιρα presupposes the former existence of a neuter in *-ar (< **r*), which also serves as the basis for χίμαρος.

3.5.1.3. Chronology and Resonant Syllabicity

It seems probable that any similar examples of **CRyV*- sequences, where there is a failure of the expected vocalization **CRyV*-, are also likely to be comparatively late and purely Greek creations. It seems plausible that ἐλάύνω ‘drive, push’ is a denominative based on an unattested *r/n*-stem noun **ela-wr*, **ela-wn*- built from the verbal root **H₁elH₂*-.⁴⁴ The only plausible inherited suffix for deriving such a form would be *-ye/o-. But there is no trace of the usual reflexes of *y or *i in this form. One way of explaining this would be to suppose a form **elawnyō* instead of **elawnyō*, and that in such a position *y left no reflex. It cannot necessarily be taken as significant that **elawnyō* violates Sievers’ Law, since it could only have been formed at a stage in Greek when some of the inherited rules of resonant syllabification had clearly broken down; it does not seem inconsistent to suppose that Sievers’ Law might also have ceased to function by this stage.

3.5.1.4. Conclusions: The Evidential Value of *-ya Feminines

It is clear that the nominative singular of feminines in *-iH₂ did not originally fulfil the usual conditions for Sievers’ Law alternation. But under most models of Sievers’ Law, we might have expected alternation to have been possible in oblique cases with the *-yeH₂- form of the suffix.

If we follow Ruijgh (1992) in regarding *-iya as the regular outcome of word-final *-iH₂ (as in πόντια), then we would have to suppose that the prevalence of *-ya in Greek represents the outcome of paradigmatic levelling from oblique cases. Therefore, we would only expect a nominative in *-ya where the oblique cases had *-yā-. This being the case, in examples like οἶσα ‘being’ (f.) from **H₁s-ont-iH₂*,

⁴³ Peters (*loc. cit.*) cites the parallel case of νῆσσα ‘duck’ < **nāt-ya*, which developed a geminate -σσ-, as if it had a morpheme boundary, in spite of the absence of a related stem **nāt*- elsewhere in Greek. However, this example is itself far from straightforward to explain; see Katz (2004) for extensive discussion.

⁴⁴ For this root, cf. ἐλάω and aor. ἔλασα. Indo-European connections are not certain—see LIV² (235), Beekes (2010:401–2), etc.—but the shape of the root seems reasonably clear. For the nominal formation cf. ἄλεαρ < **alewar* < **H₂lH₁-wr* beside ἄλέω (cf. Arm. *aliwr* ‘flour’).

or $\beta\tilde{\eta}\sigma\sigma\alpha$ from $*g^weH_2d^h-iH_2$, the paradigms taken as a whole would still constitute counterexamples to Sievers' Law, since we could not explain $*-ya$ in the nominative without also accepting that forms with a full-grade suffix $*-yeH_2-$ (not $*-iyeH_2-$) must have existed. There might be all sorts of ways in which one could explain away individual examples: one's assumptions about how the paradigmatic ablaut functioned at the relevant stage might complicate the picture somewhat, and one could follow Ruijgh's assumption of Schindler's final syllable restriction. But if we leave these possibilities aside, the case could be made that such examples are evidence against Sievers' Law.

However, in my view, there is just enough evidence from outside the feminine formation to support the idea of a sound change $*-iH > *-yV$, at least for $*H_1$ and $*H_2$, i.e. Meg. $\sigma\acute{\alpha}$ (beside Hom. $\acute{\alpha}-\sigma\sigma\alpha$ etc.) $< *k^wy\alpha < *k^wiH_2$, and $\acute{\omicron}\sigma\sigma\epsilon$ n. dual 'a pair of eyes' $< *H_3ek^wiH_1$.

Given the general intolerance of paradigmatic variations in semivowel syllabicity in Greek, it seems completely believable that any evidence for Sievers' Law alternation in the full-grade suffix $*-yeH_2-$ could have been eliminated in favour of more or less uniform $*y$, once $*-ya$ was found almost universally in the nominative singular. The anomalous cases with $-\iota\alpha$ seem explicable by Peters' epenthesis. At any rate, they are hardly to be taken as evidence of Sievers' Law variants $*-ya/*-iya$.⁴⁵

If we take this line, it seems reasonable to conclude that the behaviour of secondary $*y$ of such origins cannot prove decisive in any discussion of the behaviour of Indo-European $*y$. It seems legitimate to regard counterexamples to Sievers' Law in the feminine $*-ya$ formation as evidence for the chronology of any breakdown of Sievers' Law in the history of Greek, rather than as evidence for or against its former existence.

3.5.2. Secondary $*y$ from Word-internal $*-iH$?

A further source of secondary Greek $*y$ has sometimes been identified in non-word-final $*-iH-$ and $*-uH-$ sequences. Francis (1970:276–84, *non vidi*) and Normier (1977:182–4, esp. n. 26 and 30; 1980a:273 and n. 86) advanced the idea that while a sequence $*-iH_1-$ or $*-uH_1-$ developed into $*\bar{i}$ and $*\bar{u}$ respectively, $*H_2$ and $*H_3$ behaved rather differently in such sequences: $-iH_2- > *-y\bar{a}-$, $-uH_2- > *-w\bar{a}-$, $-iH_3- > *-y\bar{o}-$, and $-uH_3- > *-w\bar{o}-$.

Francis (1970:279) provided evidence for such a change by equating $\pi\rho\acute{o}\sigma\omega\pi\omicron\nu$ 'face, countenance' with Ved. *prátikam* 'face, appearance' $< *proti-H_3k^w-om$ (cf. $\acute{\omega}\psi$, $\acute{\omicron}\sigma\sigma\epsilon$, etc.).⁴⁶ Klein (1988) developed this idea, adding further evidence that the behaviour of different laryngeals might not be parallel, and Rasmussen (1990–1) argued that the Francis–Normier developments are plausible on a phonological level.

⁴⁵ Pace Klein (1988:261–2) for reasons which will be enumerated in §3.5.2.

⁴⁶ As Klein (1988:264) points out, as does Beekes (2010:1240), $\pi\rho\acute{o}\sigma\omega\pi\omicron\nu$ could have been formed within Greek as a compound *proti-ōp-*, with a similar morphological structure to $\mu\acute{\epsilon}\tau\omega\pi\omicron\nu$ 'fore-head' etc., $\acute{\epsilon}\nu\omega\pi\acute{\eta}$ 'face, countenance'; this type of compound is alive in Greek and could have been formed later. If this explanation is correct, then it would require us to accept that there was secondary devocalization of $*i$ in some contexts. This idea will be pursued in detail: see §3.5.3.

Klein (1988) supposes that the Greek exponents of the well-attested Indo-European forms $*g^w iH_3 wós$ (Lat. *vīvus* etc.) and verbal $*g^w iH_3 we-$ (Ved. *jīvati* etc.) are ζῶός ‘alive’ and ζῶει ‘lives’ respectively. This would imply that the regular development of a word-internal sequence $*-iH_3-C$ in Greek was $*-yō-C$. Other accounts of these forms have to suppose a full grade in the root $*g^w yeH_3-w-$, which forces the assumption of schwebeablaut, if we also want to derive βείομαι, Ved. *gáya-*, etc. from a root $*g^w eyH_3-$; see Beekes (2010:216–17).

Klein and Rasmussen argue that this predicted development was influenced by the weight of a preceding sequence. In order to avoid a ‘super-heavy’ initial cluster, $*k^w riH_2-to$ develops into *πρίατο* rather than the predicted $*k^w rya-$. For Klein (1988:261–2) this behaviour is an explicit reflection of the operation of Sievers’ Law, and he argues that the syllabic $*i$ in *πότηνια* arises for the same reasons.

Leaving aside the inherent peculiarity that the length of the *a*-vowel in each case is different from what would have been expected under these assumptions, there are other problems with this account. At least in the case of the feminine suffix, it is fairly clear, in my view, that Sievers’ Law cannot be implicated. As we have noted, the nominative singular $*-iH_2$ would not have originally met the conditions for Sievers’ Law in Indo-European, so we would have to suppose that Sievers’ Law was operative in Greek at the time when $*-iH_2$ was replaced by $*-ya$. Along the same lines, we should note that neither the stem $*potn-$, nor $*sm-$ (> *μιά*), nor $*-tr-$ in *-τρια* would have represented heavy sequences for Sievers’ Law when the original patterns of syllabification pertained, i.e. in the context of Indo-European syllabification we would have expected an automatic vocalization of the liquid or nasal. Finally, the point in the history of Greek when the $*-ya$ variant was created, so producing a potential new constituency in which Sievers’ Law could have applied, was precisely when a very substantial number of exceptions to Sievers’ Law arose. Given this insensitivity to the original conditions of Sievers’ Law in the $*-ya$ variant, it seems intrinsically unlikely that Sievers’ Law was extended at this time by the creation of nominatives in $*-iya$. As for the examples of *πρίατο* and *ἀπρίατος*, it is possible, as we have seen, to assume that such forms are rebuilt from the 3rd pl. *ἐπρίαντο* < $*e-k^w riH_2-ento$.

Peters (1988) has argued strongly against the Francis–Normier view of laryngeal developments in Greek, and in general the theory has not found wide favour. A detailed consideration of the evidence would be out of place here. From our point of view we can note that it is more or less out of the question that we could find convincing evidence for the continuation of Sievers’ Law in Greek from any new instances of $*i$ or $*y$ that might have resulted from such developments.

3.5.3. Devocalization at Morpheme Boundaries: A Converse of Sievers’ Law in Greek?

We saw that a ‘converse’ of Sievers’ Law clearly operated at a certain stage in Germanic, devocalizing any newly created instances of $*-iy-$ which arose after light sequences. We also saw that Vedic has no reliable evidence of any such effect. The question naturally arises whether any such behaviour can be attributed to Greek.

The obvious answer is ‘no’, since, unlike Germanic, Greek has an enormous number of adjectives in *-ie/o-* (probably around 10,000 examples before the modern period);⁴⁷ in Homer about half of these follow light sequences.⁴⁸ So, there is no synchronic indication of a converse of Sievers’ Law in operation. However, we ought to note that the *-ie/o-* suffix is wildly productive in Greek, and one might argue that this productivity may have caused some earlier pattern to be obscured. Indeed, there is a considerable body of examples where we find a suffix or stem which we would expect to end in an **i*, on morphological grounds, which emerges in Greek with the reflexes of **y*. Whether this is an indication that there was a converse of Sievers’ Law is a rather different question which will need to be addressed.

In Attic *τῆμερον* and Ionic *σήμερον* ‘today’ we can detect a compound built from the demonstrative **ki* (cf. Lat. *cis*) and *ἡμαρ* ‘day’.⁴⁹ Yet instead of **kiyāmeron* we find the reflexes of **kyāmeron*. It looks as though the semivowel in the demonstrative element has been devocalized.

There is an argument for seeing this process as a continuation of an Indo-European morphophonological rule. A plausible origin for Indo-European **médʰy-os* ‘in the middle’ (> Gk *μέσος*, Ved. *mádhyā-*, etc.) is the thematization of an old locative **medʰi*. It seems likely that *πόσος* ‘how much’ (< **kʷotynos*) is derived from Indo-European **kʷoti* (cf. Lat. *quot*, Ved. *kāti* ‘how many’, etc.). Similarly, *τόσος/τόσος* ‘so great, so many’ < **toty-o-s* might be neatly explained as a thematic derivative from **toti* (> Ved. *tāti*, and Lat. *tot*, *toti-dem*). However, there is every indication that this process was ongoing within Greek, because the forms showing such developments are not merely fossils from this Indo-European process, but, in fact, primarily consist of forms exhibiting morphological configurations which are unique to Greek.

A process of devocalization is usually assumed in the history of *αἰετός* ‘eagle’, Att. *ἄετός*. The gloss *αἰβετός· ἄετός Περγαῖοι* (Hsch.) suggests that *αἰετός* and *ἄετός* also went through a stage **aywetos*. It seems sensible to accept the traditional connection with the Indo-European *i*-stem **H₂ewi-* ‘bird’ (cf. Lat. *avis*), with an additional suffix *-eto-* (cf. *νιφετός* ‘snowstorm’, *πυρετός* ‘burning heat’; see e.g. Beekes 2010:35–6). However, in order to reach a form **aywetos* from a starting point **awi-etos*, we need to suppose an intermediate stage **awy-etos* with a devocalization of the heteromorphemic semivowel-vowel sequence, for otherwise the subsequent metathesis of the semivowel is inexplicable.⁵⁰

The same development can be seen in *πρόσωπον* ‘face, countenance’, which could be from a compound **protý-ōpon* with a devocalization of the expected form

⁴⁷ Buck and Petersen (1970:43) estimated that there are at least 10,000 **-ye/o-* and **-iye/o-* formations taken as a whole. But it is absolutely clear that the vast majority of these involve **-iye/o-* and not **-ye/o-*.

⁴⁸ In Homer, 149 out of 287 examples of the nominal suffix *-ie/o-* follow light sequences.

⁴⁹ The only certain cognate of *ἡμαρ* is Armenian *awr*, which seems to go back to an alternative nominative singular form **āmōr* (see Clackson 1994:96–7). Sometimes a root-initial laryngeal is reconstructed, but only on the basis of general considerations of Indo-European root structure; we do not know if this word goes back all the way to Indo-European. The rough breathing in Att. *ἡμέρα* must be secondary given the lack of a rough breathing in other non-psilotic dialects; cf. Locr. *ἄμερα*, Arc. *ἄμερα*.

⁵⁰ Whether a metathesis of **-wy-* to **-yw-* was involved or whether there was an intermediate step with palatalization does not affect this particular argument.

proti-ōp-, which would have had a similar morphological structure to μέτωπον ‘forehead’, ἐνώπη ‘face, countenance’.⁵¹

The forms πελλός and πέλλος (the accent varies in codices) ‘dark coloured’ (Theoc.5.99 etc.) might be explained by this mechanism. Weiss (1996:672) points out that there is a certain amount of evidence for an original *i*-stem with *e/o*-ablaut, if we compare πελιός ‘discoloured, bruised’, e.g. Hp.Morb.2.68 (perhaps < **peli-wo-s*), πελιδνός ‘livid, blue, dark’, e.g. Hp.Aph.4.47, Arist., and πολιός ‘grey, grizzled’, e.g. λύκοιο Il.10.334 (perhaps < **poli-wos*).⁵² We may also compare Ved. *palitās* ‘grey’ and Lat. *palleo*, *pullus*. All these forms seem to point towards an original *i*-stem **peli-/poli-*, yet we find πελλός, which seems to go back to **pelyos* rather than the expected **peli-os*. This would be explained if we assumed the same devocalization of *-i- + *-V- across a morpheme boundary.

It is possible that some *i*-stem paradigms once exhibited devocalization of the stem vowel before endings beginning with a vowel. It has been argued that ἔχινς -εως ‘viper’ is cognate with ὄφινς (cf. Ved. *ahi-*, Av. *aži*, and Arm. *iž* < **H₁eg^{wh}i-*), in spite of the fact that one form has a velar and the other has the reflex of a labiovelar. This would be possible if the original *i*-stem paradigm incorporated a genitive singular form **H₁eg^{wh}y-os*. However, if Beekes (2010:489) is right to see ἔχινς as the base for the word for ‘hedgehog’ ἑχίνος (cf. Arm. *ozni*, OHG *igil*), then it would be necessary to reconstruct a palatal velar in this group of words rather than a labiovelar. In this case we would not have to see ἔχινς as an example of a split paradigm and there would be no wider implications for the original paradigmatic behaviour of *i*-stems.

A much less certain example might be adduced if we follow García Ramón (1992) in deriving the personal name Κασσάνδρα from a compound containing the verbal root found in κέκασμαι (< *(s)*kend-* ‘raise’). The first element of the compound would contain **knd-ti-*, which, on this analysis, seems to yield two different outcomes, one with devocalization and one without, in Καστι-άνειρα < **knd-ti-* vs Κασσάνδρα < **knd-ty-anra*, cf. Κασσ-άνωρ; see also Beekes (2010:654). However, the etymologies of personal names are always difficult to rely on, given the lack of any semantic corroboration.

It is notable that none of these examples of devocalization conform to the pattern we would expect to see in a converse of Sievers’ Law. We never observe the simplification of a morphologically motivated sequence **i* + **y* emerging as **y*: e.g. τίω ‘honour, estimate, praise’ is probably from **k^wi-ye/o-* (see LIV² 377–8), but does not become **tye/o-* > **se/o-*. These devocalizations are restricted to cases where a semivowel + vowel sequence (**-i(y)-V-*) straddled a morpheme boundary. There might be an argument for seeing these changes as the very development which gave rise to Sievers’ Law in the first place. However, in a few instances, counterexamples to Sievers’ Law are actually generated by this process. In this respect it makes no sense to regard this as a converse of Sievers’ Law, or indeed as the origin of Sievers’ Law.

⁵¹ This account operates on the assumption that we do not accept the theory of Francis (1970:279) that πρόσωπον is directly cognate with Ved. *prātīkam* ‘face, appearance’ and developed from **proti-H₃k^w-om* by regular phonological change (see §3.5.2).

⁵² Conceivably, also compare Myc. *po-ri-wo*; see Nussbaum (1999:403 n. 53), but cf. Beekes (2010:1219).

An example of the creation of a new instance of **y* after a heavy sequence may be found in *λοῦσσον* ‘(white) pith of a fir tree’ (hapax in Thphr.*HP3.9.7*). It is natural to associate this with the extremely well-attested Indo-European root **lewkw-/*lukw-*, not least because Theophrastus says that the *λοῦσσον* is *λευκός*.⁵³ In consequence it has been usual to reconstruct **lowkw-yo-n*, perhaps a **-ye/o-* derivative from a root noun **lowkw-s* (cf. Lat. *lūx*). But there are two oddities with such a reconstruction: the *o*-grade of this root in Greek is confined to this word (cf. *λευκός* and *λύχνος* < **luksnos*, etc.), and furthermore there is only one clear example of a reconstructible **-ye/o-* nominal with an **o*-vocalism in the root; see §5.3.2 n. 60.

Nussbaum (1999:403) argues, more or less in passing, that *λοῦσσον* should rather be analysed as **lowky-o-*, in effect a thematic derivative from an acrostatic *i*-stem formation **lowkw-i-/*lewkw-i-*. This original ‘*i*-abstract’ would have been formed from adjectival **lewko-* ‘bright’ by a regular Indo-European process which gave substantives in *-(C)i-* from adjectives in *-(C)o-*: e.g. Lat. *ravis* ‘hoarseness’ beside *ravus* ‘hoarse’; Lith. *rūdis* ‘rust’ beside *rūdas* ‘reddish brown’; see Nussbaum (1999:399ff.). Furthermore, these *i*-stem substantives exhibited acrostatic paradigmatic ablaut, yielding **o-* and **e*-vocalism in the root, e.g. ἄκρις ‘peak’ < **H₂ekris* (cf. Skt *āśri-* ‘corner, edge’, though Sanskrit does not illustrate the nature of the root vocalism) beside ὄκρις ‘point’ < **H₂okris* (cf. Lat. *ocris*). The abstract **lowki-* would then have been made concrete in a further process of derivation giving **lowki-e/o-*, which yielded **lowky-e/o-* by the same kind of process of devocalization we have seen in other instances of an **-i-* + **-V-* sequence across a morpheme boundary. The apparently ongoing nature of such changes at an early stage in Greek makes it difficult to know whether we should otherwise have reasonably expected any inherited Sievers’ Law alternations to have been operating at the stage when **lowky-e/o-* emerged. At any rate, since we cannot know the chronology, we cannot automatically use this form to make an argument against the prior validity of Sievers’ Law, at least not without further discussion.

3.5.3.1. Chronology and Exceptions

It is quite clear that this devocalization was never obligatory in Greek. We find endless examples where a prevocalic syllabic **i* survives before a morpheme boundary, e.g. αὔριον ‘tomorrow’, seemingly built from **aws-r-i-*, which can be a locative of the *r*-stem which is also found in Lith. *aušrà*, Skt *usrá-*, and Gk ἄήρ ‘mist, haze, clouds’ < **H₂ews-er-*; see Beekes (2010:172). More obvious examples include ἀντί-ος ‘opposite, opposed’ from ἀντί and compounds like ἀργι-όδους ‘white toothed’ or ἐν-άλι-ος ‘in the sea’. It is not clear whether analogical pressure prevented these forms from undergoing the change, or whether there is a chronological cut-off, after which the process stops, or whether the rule was not regularly applied in the first place.

⁵³ A note of caution is perhaps required. This is effectively Theophrastus’ etymology, and it may well be right. But names of plants are commonly of Pre-Greek origin, as are forms with a suffix *-σσ-*. We could think of a word formed on the root *λου-* found in Hsch. *λουνόν*· λαμπρόν (λαμπρός, ἄ, ὄν ‘bright, radiant’ in e.g. Il.1.605). With a technical term such as this, certainty is elusive, and caution required.

The devocalization represented in **med^hyo*s is clearly of Indo-European antiquity. But most of the examples we have seen are uniquely Greek. There is no reason to suppose that all these forms go back to Indo-European in their devocalized form.

Nevertheless, some of these processes are clearly quite ancient. The devocalization which produced Att. τῆμερον and Ion. σῆμερον ← **ki* + ἡμαρ ‘day’ in all likelihood took place in the pre-Myc. period. This can be shown by considering Myc. *za-we-te* [zawetes] ‘this year’, which represents the outcome of **kyā-wetes*, the same form which gives Att. τῆτες, Ion. σῆτες (EM), Dor. σᾶτες, etc. This consists of a resegmented element **kyā-* and φέτος ‘year’. It is most likely that this new morpheme was abstracted in the form **kyā-* rather than **ki(y)ā-* (which could conceivably have subsequently become **kyā-*), since at the *ki(y)-āmeron* stage the morphological structure was totally transparent and not particularly susceptible to misanalysis.⁵⁴ Thus, it seems that the stage **kyā-* had been reached before the Mycenaean period.

3.5.3.2. A More Complex Example

We can perhaps recognize traces of this same devocalization phenomenon lying behind the verb ἄοσσέω ‘help, support’.⁵⁵ This is in all probability a denominative from an unattested nominal **aossos* < **sm̥-sok^wye/o-*, cognate with Lat. *socius* ‘companion’ (see Beekes 2010:112–13). It seems very attractive to suppose that this **sm̥-sok^wye/o-* is ultimately to be connected with the Vedic *i*-stem *sakhi-* ‘companion’. In order to explain the aspiration in the Vedic form and the failure to find **ā* from Brugmann’s Law, it is usual to reconstruct a laryngeal here, i.e. *sok^whi-*. The question then becomes how to explain the lack of a laryngeal reflex in Greek and Latin.

If we accept Pinault’s rule,⁵⁶ then a laryngeal would have been lost regularly between a consonant and *y, i.e. **sm̥-sok^wHy-e/o-* > **sm̥-sok^wy-e/o-*. The chronology was such that this rule would feed Sievers’ Law.

On the other hand, if we do not accept Pinault’s rule, the laryngeal loss would still be explicable, albeit by making different assumptions. If we supposed that a **-TH-* cluster was heavy for Sievers’ Law, then we might expect a form **sm̥-sok^wHiy-e/o-*. The clear evidence for *y in the Greek form would then demand the assumption of a further devocalization of **i* within the history of Greek of the type we have been discussing.

There is yet another possibility. It is conceivable that, even if formed at a very early stage, the thematic formation built from the *i*-stem could have retained syllabic *i* in the stem, just as in Mayrhofer’s (1986:161) class of delocalival adjectives such as Ved. *dāmiya-* ‘in the house’ and *āpiya* ‘in the water’. In such a case we could

⁵⁴ One might ask why a prefix **ky-* was not extracted at the **kyāmeron* stage, and why the following vowel was also involved. It is possible that there were morphophonological constraints on such an outcome; it is hard to think of other Greek prefixes consisting of a word-initial consonant cluster. I am grateful to Prof. Donald Ringe for pointing this out to me.

⁵⁵ Although the verb itself is only attested in Moschus, its earlier existence can be inferred from the agent noun ἄοσσητήρ ‘helper, protector’ already in Homer.

⁵⁶ See §3.8.1. Presumably in Indic the laryngeal could survive because the phonetic environment for loss only occurred in certain parts of the paradigm.

reconstruct **sm̥-sok^wHi-* + **-e/o-*. The Greek laryngeal loss could simply be due to regular prevocalic laryngeal loss. Once again, we would need to assume a further devocalization of **i* within the history of Greek of the type we have discussed.

Finally, if we do not accept the reconstruction of a laryngeal here, then the sequence before the semivowel is certainly light, and we can reconstruct **sm̥-sok^wy-e/o-*, either through Indo-European combinatorial principles, or owing to later devocalization across a morpheme boundary.

It is clear, in any event, that this does not constitute a secure example of devocalization across a morpheme boundary, even though such a development would feature in many explanations. Nor can we reliably deduce the weight properties of **-TH-* clusters from an example like this, given the many lines of development which can be plausibly imagined. Similarly, we cannot use this as a sure example of Pinault's rule. The example is nevertheless interesting for the possibilities it raises.

It becomes clear that in the case of this word—with its particular phonological and morphological configuration—no matter what assumptions we make about Sievers' Law, there is a ready mechanism which one can use to explain the final result. For this reason, ἀοσσέω cannot be used as evidence for or against any particular formulation of Sievers' Law. Nor can it be used for or against the general notion of rule-governed semivowel syllabicity alternation in the history of Indo-European or Greek.

3.5.3.3. Indo-European 'Egg'

It has proven extremely difficult to resolve the phonology of the word for 'egg' in Greek, e.g. Ion. ᾠόν. The comparative evidence is confusing, and the internal evidence points in contrary directions. It may be that the assumption of a devocalization over a morpheme boundary could help to explain some of the problems in the Greek evidence.⁵⁷

If we were to follow the evidence of Arm. *ju*, SCr. *jáje*, and YAv. *aēm*, we might reconstruct a form **ōyom*. On the other hand, Lat. *ōvum* seems to be from **ōwom*, as do the reflexes in some modern Iranian languages, e.g. Tāliši *ūva*.

Celtic and Germanic forms of this word seem to suggest a reconstruction **ōwyom*, e.g. W. *wy*, ON *egg*, OHG *eiie* (dat. sg.) < **ayyom* perhaps with Osthoff's Law shortening from **ōwyom*. The Latin evidence might be reconciled with such a reconstruction, since we have no other evidence for the treatment of a sequence **-wy-* in Latin, and so conceivably *ōvum* derives from **ōwyom*. Similarly, in the light of the Avestan form, it is not clear that the other Iranian evidence can be taken as clear support for a form **ōwom*.

It is difficult to tell whether the Greek evidence reflects **ōwyom* or **ōwiyom*. This is, of course, important from our point of view, since **ōwyom* would constitute a counterexample to any of the various formulations of Sievers' Law, and it would have to be attributed to early Greek and to Indo-European.

Partly with this in mind, Schindler (1969) reconstructed **ōHuyóm* for Indo-European, which could be analysed as **ō-Huy-o-m*, consisting of a preposition

⁵⁷ I am extremely grateful to Dr Nicholas Zair for the long and interesting discussions we have had with regard to the many difficulties which surround the origins of this word in Indo-European. Our views differ in several respects and the reader should compare Zair's (2011) article on the subject.

*ō ‘near, towards’ (cf. Ved. *ā*) and the zero grade of the word for bird. In consequence, the sequence before *y would only have become heavy for Sievers’ Law after the loss of intervocalic laryngeals, i.e. *ōHuy-o-m > *ōwyom. However, the reconstruction is rather ad hoc, and a morphologically and semantically better result might be had by following the old idea that the word for egg is a *vrddhi* derivative of the word for bird: *Hōwi-o-m (perhaps yielding *ōwy-o-m through a devocalization across a morpheme boundary of the type we have been discussing). However, the whole question of the correct etymology is in a sense secondary, given the formal problems in the Greek evidence.

Lesbian has trisyllabic ὤϊον (Sapph.), which could go back to *ōwiyon. However, Schindler (1969) argued that the Aeolic form could be a replacement for ὤεον (Ibycus and Semonides), given the tendency to confusion in the material suffixes -εο- and -ιο-. Ion. ὤϊον (Hdt.) could represent *ōïon or *ōyyon (< *ōwyon), but we cannot know, given the lack of any evidence from scansion. Schindler (1969:160–1) further noted that if we reconstruct a form *ōwióm—a dactyl with an accent on the final syllable—it should have undergone Wheeler’s Law (see Probert 2006:87–96), thus retracting the accent from the final syllable, giving *ōwíom. But we actually find ὤϊον with the final accent in place. This seems to be a strong point in favour of accepting a reconstruction *ōwyón, since Wheeler’s Law is early and pan-Greek (see Probert 2006:95 n. 30).

On the other hand, if the form *ōwyón is of any antiquity, we might also have expected it to undergo shortening by Osthoff’s Law, giving *ōwyón > *oión. It has been argued that a sequence *-wy- was ‘immune’ to the effects of Osthoff’s Law (see Adrados 1950:410, Peters 1980:309, and Simkin 2004:141ff.), perhaps because the sequence *-wy- had already developed into *-yy- at the appropriate stage. But this would seem to involve the assumption that a form such as El. βασιλείω ‘rule’, which is usually taken to derive from *g^wasilēw-yō, with Osthoff’s Law shortening, was in fact analogically rebuilt from shortened forms of the base noun: βασιλεῦς and βασιλεῦσι. This is a possibility. But the evidence for *-wy- sequences being immune to Osthoff’s Law is limited to the word for ‘egg’, and so we run a distinct risk of circularity in argumentation.

It is possible that the Osthoff’s Law problem could be overcome by assuming *ōwiyom for an early stage in Greek, and then a development to *ōwyom, at a time when Osthoff’s Law no longer applied. This would have to be well within the history of Greek, since Osthoff’s Law is widely considered to have taken place after the preliminary stages of the first compensatory lengthening.⁵⁸ If there was a morpheme boundary in *ōwi-om, then it seems possible that this form shows the same devocalization as we find in τήμερον, αἰετός, πρόσωπον, etc.

The assumption of a morpheme boundary surviving in this word until after the application of Osthoff’s Law might seem a little far-fetched. However, regardless of whether there was an original connection between the words for ‘bird’ and ‘egg’, it does not seem inconceivable that there could have been a synchronic formal link

⁵⁸ This chronology is assumed because the long vowel in Att. μηνός, Aeol. μῆννος ‘month’ (gen.sg.) < *mēns-os < *meH₁ns-os might have been expected to shorten, unless the *-ns- cluster had already begun to develop phonetically by the time Osthoff’s Law applied. The exact nature of that development is something that need not concern us directly for our present purposes.

between the root in **ōwi-om* and **awi-etos* (> **awy-etos* > αἰετός).⁵⁹ If such a link was felt, then a morpheme boundary could have been maintained. This would have created the conditions where a semivowel has been shown to be devocalized in a number of cases on what seems to be an ongoing basis in Greek.

The difficult questions raised by this form are not easily addressed within the scope of what we can achieve here. The treatment of **-wy-* and **-wiy-* sequences in the various Greek dialects, and their subsequent developments, are not currently well understood. Elucidation of this area of Greek phonology is certainly a desideratum.

3.5.4. Dialectal Developments

We can identify a number of processes involving the devocalization of Indo-European **i* and the production of new examples of **y* in various Greek dialects. It is usually fairly clear when examples constitute secondary rather than inherited instances of **y*.

3.5.4.1. Lesbian

In Lesbian we find secondarily devocalized post-consonantal **i*, whose outcome is identical to that of original **y*. But it can be identified as secondary on distributional and etymological grounds.

We find examples of the preverb/preposition *διά* in the form *ζά* (Sapph.63.4, Alc.45.3); cf. *ζάβαις* (Alc.38.a3) < **dia-bant-s* etc. This is reflected in Homer as the intensifying prefix *ζα-* in epic compounds such as *ζά-θεός* ‘very godly’, *ζά-χότος* ‘very angry’, etc. These seem to be Aeolic forms.

Similarly, Hom. *ἄζηχῆς* ‘incessant’ (of noise and pain) may be from **a-dia-ek^hēs*, with **dy-* > *ζ*. This also looks like an Aeolic form, since we would not expect this vowel contraction in Ionic; we would expect Ion. *ā* rather than *η* < **-ae-*.⁶⁰

If *διᾱ-* results from **dis-* + *-a* (cf. Lat. *dis*; see Chantraine 1999:275–6), with final *-a* adopted from *παρά* and *μετά*, then this would be a strong indication that this Lesbian devocalization took place at a relatively late stage (after the total loss of intervocalic **h* < **s*).⁶¹

Word-internally, we find *Λυδίαν* scanned as disyllabic (Sapph.132.3), albeit without any palatalization effects.

⁵⁹ This morpheme boundary might also have been bolstered by a connection (perceived or real) with *οἰωνός* ‘bird of prey, bird of omen’ (Hom.); cf. *οἰωνός* (Trypho and possibly in Alc. 60 B 6) < **ōwi-ōn-o-s*. For the possible connection with the word for ‘egg’, see Schmeja (1963:35ff.) and Peters (1980:292–305). This form itself probably does not feed into the question of the application of Sievers’ Law in Greek, if it constitutes an *einzel sprachlich* development from the *i*-stem **H₂owi-*.

⁶⁰ However, an alternative analysis, suggested by Chantraine (1999:25), explains the vowel by invoking analogy on compounds in *-ηχῆς* such as *δυσηχῆς* ‘ill-sounding’, *πολυηχῆς* ‘many-toned’, etc.

⁶¹ Hill (1967:62) took the implied variation between **dia* and **dya* as evidence for Sievers–Edgerton effects producing word-initial sandhi variants. However, this seems far-fetched, regardless of the etymology we posit for this word, since, as we shall see, there are practically no traces of semivowel syllabicity alternations word-initially elsewhere in Greek.

Instances of *i following a resonant are also affected: cf. *πέρρ* or *ἐνν* before a vowel as opposed to *περί* and *ἐνί* before a consonant.

It is difficult to know how to interpret the fact that these secondary developments give the same outcomes as original stop plus *y sequences. We could assume that secondary *y merged with original *y prior to palatalization. Alternatively, we could assume that there was a secondary round of palatalization with concomitant loss of this new *y, and that the results happened to be the same.

It is also unclear whether such instances of devocalization would have obeyed Sievers' Law. The only example where a potentially heavy sequence could have been created is in the development of *Πρίαμος*. However, instead of finding the reflex of a cluster **pryam*os, we seem to find a secondary vocalization of the liquid, i.e. **pryam*os > **peryam*os > *Πέρραμος*.

3.5.4.2. Thessalian

Thessalian exhibits a much more widespread secondary devocalization of post-consonantal *i. This usually leads to gemination, and sometimes the palatal character of the sequence continues to be indicated in the spelling by gemination together with <ι>. A clear possibility is that the spelling could indicate a palatal geminate. There are a great many examples, such as *περρ* < **peri*, *πόλλιος* < *πόλιος*, etc.

It is clear that Sievers' Law is not respected by this change. The -ιο- adjective formed from the place name *Κραννούν* is found in Thessalian not only as *Κραννούνιος*, but also as *Κραννούννος* and *Κραννούννιος*, with the gemination probably resulting from a recent change of **kranōn-iyo-s* > **kranōn-yo-s* (cf. Blümel 1982:55ff., 98ff.). This example demonstrates that, by the time of this devocalization, Sievers' Law was certainly not in force. Compare Thess. *δικαστείρρεις*, which is equivalent to Att.-Ion. *δικαστηρίους* 'courts', and *κῦρρον* < **kūryon* beside *κῦριον* 'valid' in Attic-Ionic. However, we do not find examples with a geminate developing after another consonant, nor do we find anything resembling the secondary vocalization of a liquid found in Lesbian; cf. Thess. *τρά* < *τρία*.

The outcome of secondary *y in Thessalian is a little different from original *y, insofar as the palatal quality is sometimes indicated by <ι>; original *y leaves no such traces (cf. *κρέννω* < *κρίννω* < **krin-ye/o-*). It seems likely that these examples of secondary *y did not merge with inherited *y, but constitute a separate development. The counterexamples to Sievers' Law here cannot be deemed significant, except insofar as they show that Sievers' Law was not continued at this stage, and was not 're-invented' when new instances of post-consonantal prevocalic *y emerged.

3.5.4.3. Mycenaean Devocalizations?

There are a number of Mycenaean forms where the syllabification of semivowels seems to be at odds with their first-millennium equivalents.

For example, Risch (1981:559) posits a devocalizing tendency in Mycenaean, in order to account for examples such as *a₃-za* beside classical *αἰγεία* 'of a goat'.

Similarly, we find Myc. *KE-RO₂*, which could represent [*kēryon*] or [*kēr'r'on*], beside Att.-Ion. *κηρίον* 'honeycomb' (from *κηρός* 'wax', the etymology of which is unknown). Furthermore, it is unclear how to construe the relationship between *su-za* and classical *συκέα* 'fig tree'.⁶² The other obvious question is whether the Mycenaean orthography is giving us an accurate syllable count in these instances.

In any event, it is clear that the Mycenaean facts do not always represent the stage reached by all other Greek dialects at a corresponding period. The difficulties in orthography make it very hard to know whether these are forms we should be concerned about.

3.5.4.4. Attic Devocalizations

It appears that Att. *στερρός* 'firm, solid' and *βορρᾶς* 'North Wind' have undergone some kind of devocalization of *e* with concomitant loss and gemination < **stereos* and **borēās* when we compare their Ionic equivalents *στερεός* and *βορέας*. However, there seems to be no connection with Sievers' Law because Att. **e* rather than **i* is involved and, furthermore, the contrast with the Ionic forms shows clearly that this development occurred after the stage of common Attic-Ionic, and therefore at a stage when Sievers' Law was no longer a consideration; in common Attic-Ionic *-*Cy*- sequences must have already reached a stage of palatalization or affrication (see §3.6.2).⁶³

It is conceivable that Ionic shows traces of similar behaviour in its masculine and neuter forms *πολλός*, -όν 'many much' (e.g. Anacr.; cf. *πολός/πολύ*), if Szemerényi (1974:1–31) is right to derive *πολλός* via synzezeis from **poleo*- < **polewo*-.

3.5.5. Assibilation

In Attic-Ionic, Mycenaean, and Arcado-Cypriot we find many examples of a change of **-t^(h)i(-)* to -σι(-), e.g. **poti-s* > Hom. *πόσις* 'husband'. Such an outcome is also sometimes found in word-final position, e.g. 3rd pl. Myc. *di-do-si*; cf. Att.-Ion. -ουσι, Arc. -ονσι, Cyp. -ο-si < **-onti*. However, the change admits a considerable number of exceptions where we fail to find assibilation when we might have expected it, e.g. Hom. *μῆτις* 'wisdom, skill', *φάτις* 'voice, rumour', *ἀντί* 'opposite', dat. sg. *παντί*, etc.

⁶² Allegro reduction has been invoked to explain *δέσποινα* beside *πότνια*; see Peters (1980:147) and cf. also Hom. *πότνια θεά* (Peters 1980:215 n. 165). This word is always written in Mycenaean as *po-ti-ni-ja*, but this would not necessarily be an argument against supposing a form such as **potnya*. All of this would have to have taken place after the change of **-iH₂* to **-ya* and hence, from the chronological assumptions adopted here, after the time when Sievers' Law could have realistically applied in this morphological category.

⁶³ For detailed discussion of these developments in relation to Greek relative chronology, see Crespo (1997). The idea that a devocalization is involved is fundamentally linked to the theory of Méndez Dosuna (1993) that quantitative metathesis (as exhibited by the change from *βασιλῆα* > *βασιλέα*) does not consist of an exchange of vowel quantity, but rather a synzezeis of the first vowel with an accompanying lengthening of the second vowel: **ēwā* > **ēā* > **ēā*. Of course, these changes would also be too late to exhibit Sievers' Law effects, since they only arise after the post-Mycenaean loss of intervocalic *h* < **s* and **w*.

3.5.5.1. A Connection with Sievers' Law

Hill (1967:32ff.) argued that some assibilation phenomena, namely those where the semivowel is not word-final, e.g. *πόσις*, could be understood in terms of palatalization effects in contexts where Greek originally had *y. More specifically, assibilation could result from a paradigmatic levelling of the phonetic outcome in forms where there was a post-consonantal prevocalic environment. She made an initial assumption that Sievers' Law *i/*y alternation applied in Greek and suggested that this alternation was ultimately responsible for the fact that some examples undergo assibilation of *ti > σι (in fact *ty > σ), and some do not.⁶⁴

The abstract nouns in -τις and -σις (or masculines terminating in -τις/-σις) constitute the principal evidence. Hill argued that the -τις forms would originally have been found after heavy sequences, e.g. Hom. *μέριτις*, -ιος 'measure, skill', *πόριτις* 'calf', *πίστις* 'faith, trust', *μάντις* 'seer'; on the other hand, -σις was found after light sequences, e.g. *πόσις*, *πόσιος* 'husband' (and *πόσις* 'drink'), *βάσις* 'step', *λύσις* 'solution, deliverance' (cf. Schwyzler 1953:270).

While it is evident that the nominative singular forms would not have provided the necessary post-consonantal prevocalic environment for Sievers' Law alternation, Hill argued that the oblique cases would have: the genitive singular, for example, would have been *-(t)i(y)-os under her analysis, and obeyed Sievers' Law. If the genitive underwent palatalization in cases where Sievers' Law produced post-consonantal prevocalic *y, then we could imagine a two-way process of levelling whereby the palatalized consonant of the oblique cases was generalized, while the *i of the nominative could be reintroduced into the oblique forms where the semivowel had been lost:

$$\begin{array}{llll} *poti-s > & *potis \rightarrow & *po\hat{t}i\hat{s} > & \text{Hom. } \acute{\rho}\acute{o}\sigma\acute{\iota}\varsigma \\ *po\hat{t}i\hat{-}os > & *po\hat{t}i\hat{o}s \text{ (vel sim.)} \rightarrow & *po\hat{t}i\hat{\varsigma}(y)os > & \acute{\rho}\acute{o}\sigma\acute{i}\circ\varsigma \end{array}$$

If this explanation is correct, then the development would have to be situated in the context of the first palatalization, since it relies on the fact that the outcome of a *-ty- sequence in Attic-Ionic, Mycenaean, and Arcadian was single *-s-. The fact that the very dialects which exhibit this single -σ- outcome are the same as those which exhibit assibilation is a point in favour of the supposition that there is a historical connection.⁶⁵ Assibilation could not be associated with the second palatalization in this way, since we would expect a geminate to have spread in the paradigm giving Att. *pottis, Ion. *possis, etc.

3.5.5.2. Problems with this Account

One obvious problem with Hill's account is the failure to take account of the effect of paradigmatic ablaut in these categories. While many dialects do show an invariant *i*-stem throughout the paradigm, it is fairly clear that this does not always

⁶⁴ Nagy (1970:135ff.) also argued that assibilation is linked to Sievers' Law behaviour.

⁶⁵ The position of the Aeolic dialects is difficult to assess, for while they do not show a single -σ- outcome from *-t(h)y-, Lesbian nevertheless shows assibilation of *-ti- > -σι-. This stands in contrast to Boeotian, which shows no assibilation. It seems likely that the behaviour of Lesbian is due to the subsequent influence of Ionic.

represent the earliest situation. Original ablaut alternations in *i*-stems are supported by comparative evidence. But even within Greek it is clear that at least some types of *i*-stem must have been capable of showing a lengthened grade stem, since this is a stem form which spread in Attic-Ionic, e.g. Att. πόλις ‘city’ vs gen. sg. πόλιως, Hom. πόληρος < **polēy-os* (see Rix 1976:146–7). Hill’s mechanism does not function successfully in a situation where there was paradigmatic ablaut involving full- or lengthened-grade stems (**ey*/**ēy*–) before endings beginning with a vowel.

Even leaving this problem aside, we may still be wary of equating assibilation and palatalization effects, for if these phenomena are ultimately identical, then it is unclear why we find no equivalent change in forms with voiced **d*.⁶⁶ We would have to assume that the first palatalization only affected voiceless dentals, which is certainly consistent with the evidence we have, but nevertheless perhaps unexpected.

If Hill’s explanation of assibilation were correct, it would not be at all clear why we should find Att.-Ion., Lesb., and Cypr. κασίγνητος ‘brother’ (cf. Thess. κατίγν[ειτος]), since the form would never have contained a post-consonantal prevocalic semivowel.

This account also leaves the change of word-final **ti* > -σι unexplained, e.g. in the 3rd sg. ending **ti* > -σι. Hill explicitly regarded this as a separate phenomenon (1967:44–8). It would not have been out of the question to suppose that syllabicity alternations operated across word boundaries and that forms with assibilated -σι constituted, in effect, a compromise between two sandhi variants **-s* < **-ty#V*– and pre-consonantal **-ti#C*–.⁶⁷ However, if Sievers’ Law had applied in such contexts, it is difficult to see why we have the 3rd pl. thematic verbal ending Att.-Ion. -ουσι (< **-onti*), since a sandhi variant **-onty#V*– ought to be ruled out. Therefore any argument that Sievers’ Law operated among word-final semivowels seems very unlikely to succeed. From this perspective, Hill seems wise to have left such forms aside, but it is an unfortunate consequence that a unified explanation of assibilation is thereby ruled out. If we drop the assumption of Sievers’ Law in such contexts, then assibilation phenomena could potentially be treated together.

In any event, it is not at all clear that Sievers’ Law effects are, or should be, observable in word-internal assibilation contexts either. There are a great many counterexamples to Hill’s contention that Sievers’ Law conditioning can be seen among the abstract nouns in -σις/-τις: from stems with heavy sequences we find e.g. ζεύξις ‘yoking’ rather than **zeuktis*, βλάβις ‘damage’ rather than **blaptis*, etc.

It is, of course, legitimate to point out that the -σις abstract formation was incredibly productive, and so individual counterexamples cannot be pressed very hard; indeed βλάβις is not attested terribly early, but equally we are not entitled to single out the examples which fall into a Sievers’ Law pattern, and dismiss the ones which go against it, as Hill (1967) does consistently, since it is a starting

⁶⁶ In the Arcadian of Mantinea we find a change of /*d*/ before /*e*/ in *απουδεδομένος* (= *ἀποδεδομένος*), but the conditions for the change seem to be rather different.

⁶⁷ Under such an analysis, a similar explanation could be assumed for *πρός* ‘towards etc.’ which could arise from **proty*, an antevocalic sandhi variant of **proti*; cf. Hom. *πρότι* (see e.g. Beekes 2010:1238). Conceivably, *πός* ‘near, after’ could stand for **poty*, a prevocalic alternant of **poti* (cf. Myc. *po-si* < **poti*), assuming that we should dismiss the connection with Lith. *pàs*, OCS *po*, and possibly an element in Lat. *post*; see Chantraine (1999:932 s.v. *ποτί*) and cf. Beekes (2010:1224).

assumption of her thesis that the Sievers–Edgerton Law is fundamentally valid and furthermore applicable to Greek. In her approach counterexamples are either ignored, or are simply noted without any serious attempt at explanation (e.g. αἶσα *id.* 36 n. 20, θῆσσα *etc. id.* 36, πᾶσα < **pantya* *etc. id.* 71 n. 15, 83 n. 6).

The adjectives in -ιος formed from stems ending in **t* also provide a great deal of counter-evidence: we find plenty of early examples of adjectives in -τιος after light sequences, e.g. νοτίη ‘southern, moist’ (cf. νότος), ἐσχάτιη ‘farthest part’ (cf. ἔσχατος), *me-ri-ti-jo* ‘with honey’ (cf. μελιτ-), *na-pu-ti-jo* (male name cf. Hom. νηπύτιος); we also find -σιος after heavy sequences: ἀνεψιός ‘first cousin’ (cf. Av. *naptiia-* *etc.*), πλούσιος ‘rich’ (cf. πλοῦτος), Myc. *ta-ra-si-ja* ‘allocated quantity of material’ (if derived from the same stem as τάλαντον), *te-ra-po-si-jo* ‘collector’ (?) (cf. θεραποντ-), *etc.*

3.5.5.3. Conclusions on Assibilation

Overall, we may conclude that assibilation gives us no evidence for the operation of Sievers’ Law at the relevant stage in Greek. However, neither is it clear that we should expect any such evidence, even if Sievers’ Law did apply at an early stage. Although the outcomes of assibilation resemble the outcomes of palatalization in some respects, this is not a solid argument for collapsing the two phenomena. They appear to differ in a sufficient number of respects that they should be treated as separate until and unless further evidence of a connection can be found.

3.5.6. Conclusions on Secondary **y* in Greek

We have seen that there are several sources of new examples of **y* that arose during the history of Greek. Some result from the regular treatment of sequences involving laryngeals; others result from less predictable processes of a seemingly morphotactic character. Various new examples of **y* arose in the individual Greek dialects through processes of devocalization. Assibilation, whose outcomes resemble the products of palatalization, has also been considered. These observations can help us to draw a number of conclusions regarding the chronological limits on any potentially inherited version of Sievers’ Law and the range of evidence that we can legitimately utilize in our attempts to reconstruct the inherited situation. These points clearly require some discussion.

3.6. POINTS OF CHRONOLOGY

We now have enough information to begin to place some chronological limits on the potential survival of Sievers’ Law. It is useful to make distinctions between the possible survival of Sievers’ Law as a generally applicable rule in the synchronic phonology of Greek and more limited kinds of survival, perhaps as a morphophonemic alternation in a limited number of morphological categories or, at a lower level, as mere traces of an earlier distribution without any synchronic significance.

Judging whether Sievers’ Law or traces of Sievers’ Law were actually preserved in particular morphological categories will be an empirical question to be pursued

in depth in other chapters. However, there are various identifiable stages in the history of Greek beyond which there would have been no realistic prospect for the survival of Sievers' Law as a generally applicable rule in the phonology, even if a rule of this kind was inherited from Indo-European in the first place.

We have already noted that it is very difficult to assess the consequences flowing from the creation of new instances of post-consonantal prevocalic **i* which arose through the loss of intervocalic laryngeals. But changes involving inherited **y* and new instances of **y* are somewhat easier to assess.

3.6.1. Sievers' Law and the Synchronic Grammar

It seems best to start by considering the last conceivable point in the history of Greek when, in principle at least, Sievers' Law could have survived as a synchronic phonological rule, and to make an assessment of the facts. We can then work backwards until we reach a stage in the earlier history of the language when Sievers' Law might reasonably have been expected to be well preserved, if it was inherited at all.

The loss of post-consonantal prevocalic **y* is obviously an important stage for our discussion, because it seems unlikely that Sievers' Law could have survived the loss of one of its alternants. That being said, it seems likely that the process of elimination of clusters such as **-t^(h)y-*, **-k^(w)(h)y-*, **-dy-*, and **-g^(w)y-* progressed through a number of stages rather than immediately reaching the results attested in the alphabetic Greek dialects in one step. Usually it is assumed that these clusters went through a stage of being palatal stops then affricates such as **-ts-/ *-ds-* (at any rate the outcomes of **-ty-* merge with those of inherited **-ts-*). Similarly, it does not seem impossible to suppose a stage where sequences of resonants + **y* developed into palatalized resonants.⁶⁸ A question therefore arises as to whether and for how long these etymological (or underlying) clusters of consonant + **y* continued to be interpretable as such, even after they had ceased to have such a phonetic realization on the surface.

If we are willing to entertain the idea that Sievers' Law could have continued to operate in some fashion in certain morphological categories after palatalization, then it could only conceivably have done so for as long as post-consonantal prevocalic **y* continued to exist in the underlying phonology. It seems likely that a synchronic analysis of historical **-t^(h)y-* clusters as a sequence **t^(h) + *y* remained possible even after the onset of the first palatalization, if we believe that the twofold treatment of such clusters arises because there was a restoration of forms with a transparent morpheme boundary within the cluster, e.g. **melit-ya* > **melitsa* (*vel sim.*—first palatalization) → **melit-ya* > μέλισσα/μέλιττα (second palatalization).

There is no evidence that the effects of the second palatalization were capable of being undone in this way, probably because no examples of post-consonantal

⁶⁸ I do not intend to discuss in any depth this difficult question of the reconstruction of intermediate steps in Greek palatalization. But we can entertain the idea that a palatalized stage existed for the sake of exploring any consequences this might have had. For arguments for a palatalized stage, see e.g. Allen (1958), Diver (1958:3), and Stang (1957). Crespo (1985) argues that Mycenaean actually preserves a stage with palatal stops.

*y survived as such to provide a model. Indeed, it seems that what were historically *-Cy- clusters had become opaque to reanalysis at least as early as common Attic-Ionic. We have many examples where an original *-gy- sequence would be expected, but in fact we find -σσ- or -ττ- due to analogical pressures, e.g. we find the verb Att. τάττω and Ion. τάσσω ‘array, appoint, place’ for the expected *τάζω; cf. τάγῃ ‘line of battle’ (Ar.Lys.105) etc. This replacement or at any rate usurpation of the expected *τάζω arises out of a reanalysis of the aorist ἔταξα (Hes., A., etc.) or the sigmatic future, which are ambiguous as to the underlying voice of the root-final velar; see further §6.7.5. Such a reanalysis would have been completely understandable at a stage when the form adopted by the present stem (-σσω/-ττω vs -ζω) was merely a morphological pattern which had to be learned, without any synchronic phonological motivation. But such a replacement would have been far more difficult to conceive of, if the present stem had still been synchronically analysable as *tag-ye/o-.

From this point of view it is out of the question that original *-Cy- clusters would have been interpretable as such in the historical alphabetic period (*pace* Sommerstein 1973:27ff.), since many of these analogical processes occurred in prehistory. This places an absolute limit on the potential survival of Sievers’ Law in anything like its original form in any morphological category in the synchronic grammar. At the stage after the second palatalization when analogical extensions of this kind began to occur, the ability to synchronically analyse the outcomes of palatalization as sequences involving *y had certainly been lost.

It is interesting to note in this context that Mycenaean does not distinguish between the outcome of homomorphic *-ty- and heteromorphic *-t-y-; cf. *to-so* (< **toty-o-s*) and *a-pe-a-sa* < **ap-es-nt-ya* (compound f. pple from **H₁es-* ‘to be’). If we could be sure that this was not merely an orthographic phenomenon, and if we could be sure that Mycenaean represented a stage of development shared by all the dialects in which there is a distinct outcome for monomorphic and heteromorphic *-ty- clusters, then chronological consequences could follow. Insofar as one tends to suppose that the mechanism by which heteromorphic clusters differ from their monomorphic counterparts involves an analogical restoration of *y (after which these newly restored clusters underwent the second palatalization), the fact that these clusters have not been analogically restored by the Mycenaean stage would suggest that the reflexes of the relevant clusters remained analysable as sequences involving *y until after the Mycenaean period. Unfortunately, none of this can be known with any certainty, because other explanations of the Mycenaean facts are possible, and at all times we should bear in mind that the situation in Mycenaean need not reflect the situation in the rest of Greek.

3.6.2. Sievers’ Law and the Palatalization of Stops

The fact that we can identify a large number of counterexamples to any reasonable formulation of Sievers’ Law in the outcomes of the first and second palatalizations tells us, at a minimum, that Sievers’ Law could not have been a general phonological rule in the grammar of Greek at the time when the first palatalization occurred.

A few things can be said to situate the first and second palatalizations within the history of Greek, and at the same time this provides a relative and to some extent an absolute chronological reference point for the stage beyond which the status of Sievers' Law as a productive phonological rule could not have continued.

We know that both palatalizations occur after the devoicing of voiced aspirates in Greek (because the outcomes of **-Cy-* sequences involving voiced aspirates pattern with sequences containing voiceless rather than voiced stops). It might be supposed that palatalization preceded Grassmann's Law, on the basis that Grassmann's Law is blocked when a **y* immediately follows the second of a sequence of two aspirates (e.g. $\vartheta\acute{\alpha}\sigma\sigma\omega\nu < *t^h\acute{a}k^h-y\acute{o}n$ beside $\tau\alpha\chi\acute{\upsilon}\varsigma$). One explanation would be to suppose that the stop adjacent to **y* was de-aspirated in the process of palatalization. However, this is far from certain, because aspiration could simply have been neutralized immediately before **y* at any stage.

In the context of the Attic-Ionic dialect group, some chronological conclusions might be drawn on the basis of the rather distinct outcomes of stop plus **y* sequences in Attic and Ionic respectively. Given the reflex $-\tau\tau-$ in Attic and $-\sigma\sigma-$ in Ionic, it seems very likely that, by the stage of common Attic-Ionic, the voiceless clusters **-t-y-*, **-t^h-y-*, **-k-y-*, **-k^h-y-*, **-k^w-y-*, and **-k^w^h-y-* had merged and not gone any further than an affricate stage **-ts-* (*vel sim.*). The fact that a simple geminate stage had not been reached early on is reinforced by the use of a special sign to represent the reflex of such clusters in some alphabets of Asia Minor, e.g. Ionic $\epsilon\lambda\alpha\tau\tau\omicron\nu\omicron\varsigma = \acute{\epsilon}\lambda\acute{\alpha}\sigma\sigma\omicron\nu\omicron\varsigma < *elak^h-yon-os$.

Starting from this observation, together with the working assumption that Mycenaean represented the direct ancestor of Attic-Ionic, at least as far as the development of **-Cy-* clusters was concerned, Crespo (1985) argued that *stop + *y* clusters could not have developed any further than an affricate stage in Mycenaean. However, such inferences are dangerous, given that Mycenaean is not Proto-South Greek and could have undergone any number of independent developments without necessarily affecting the course of developments in Proto-Attic-Ionic.⁶⁹

Nevertheless, we can be reasonably sure that palatalization processes began at a pre-Mycenaean stage, though it is less easy to know how far the process had progressed. Voiceless **-k^{(w)(h)}-y-* and voiced **-g^(w)-y-* and **-dy-* sequences are indicated using the *z*-series of signs in Mycenaean, e.g. *to-pe-za* 'table' $< *k^wtwr-ped-ya$, *ka-za-e* 'worse' $< *kak-yos-es$, or *za-we-te* $< *kyāwetes$. This same set of signs is also used to represent the outcome of word-initial **y-* which is represented as ζ - in alphabetic Greek dialects, e.g. *ze-so-me-no* 'boil' $< *yes-$.

Lejeune (1972:108) suggested that the *z*-series of signs probably represent affricates. On the other hand, Hart (1966) argued for a palatal stop interpretation (*k'* and *g'*). Chadwick (1983) proposed that both affricates and palatalized velars might be represented. Crespo (1985) argued for middle palatal stops. The arguments for each position are rather involved, and a conclusive interpretation seems out of reach at the moment. We can be sure that Sievers' Law could not have functioned as a generally applicable phonological rule at this stage, and so, arguably, the nature of these intermediate steps in palatalization is of only tangential interest

⁶⁹ For the idea that Mycenaean did not have a direct continuation in the first millennium, see Heubeck (1961), Adrados (1976), and Dunkel (1981).

in this enquiry. However, we should bear in mind these various possibilities when assessing the plausibility of analogical developments and synchronic reanalyses of the inherited distribution of semivowels in the relevant period. Furthermore, we should remain open to the possibility that Sievers' Law could conceivably have continued to operate as a morphophonemic principle governing the distribution of allomorphs in some categories, and in that case it might still be desirable to try to take into account the phonetic substance of any such alternations.

We may say with confidence that the first palatalization affecting $*-t^{(h)}y-$ clusters had already happened in Mycenaean, since forms like *to-so* < $*toty-o-s$ use the *s*-signs instead of the *z*-signs. The orthography could indicate that $*-t^{(h)}y-$ clusters had become $*ss$ or $*s$, but they might equally well indicate a stage $*ts$, $*\widehat{ts}$, or $*\widehat{tf}$. We know that Sievers' Law could not have been a generally applicable synchronic phonological rule by this stage, because we have already seen counterexamples to Sievers' Law which have undergone the first palatalization.

We can also be reasonably sure that Sievers' Law could not have been operational at the stage when $*-VntyV-$ sequences developed into $*-VnsV-$, because the very existence of such sequences would have been ruled out by almost any possible formulation of Sievers' Law. We know that the change is pre-Mycenaean on the basis of *pa-sa* [*pa(n)sa*] (< $*pant-ya$). We also know that this change preceded the second compensatory lengthening in the dialects which show it (e.g. f. sg. Att.-Ion. $\pi\acute{\alpha}\sigma\alpha$, Lesb. $\pi\acute{\alpha}\iota\sigma\alpha$).

3.6.3. The Palatalization of Resonants

It might be reasonable to view the loss of post-consonantal $*y$ with concomitant changes in the preceding environment as a more or less unified process, and suppose that evidence for the chronology of the changes after stops should be seen as evidence for the chronology of changes after resonants. This point of view was expressed clearly by Diver (1958:3), who argued that it is simpler to suppose that all the diverse processes associated with the treatment of post-consonantal $*y$ go back to a common phase of palatalization, followed by subsequent independent developments. However, the assumption of a uniform chronology only has the status of a reasonable working hypothesis. It is also quite conceivable that palatalization processes could have taken place in stages over an extended period of time.

Mycenaean has special signs which may be used to write the outcome of a $*-ry-$ cluster: ra_2 and ro_2 , in e.g. the comparative adjective *a-ro₂-e* 'better' < $*ar-yos-es$ (cf. superlative $\acute{\alpha}\rho\iota\sigma\tau\omicron\varsigma$). The picture is complicated by the fact that ra_2 is also used to write the feminine of the agent suffix $-ti-ra_2$, which alternates with $-ti-ri-ja$ and in later Greek emerges as $-\tau\rho\iota\alpha$. As we have already seen, there are several other instances where the apparent syllabification in Mycenaean does not match what we find in Greek dialects of the first millennium, and it is not clear whether our understanding of Mycenaean spelling is at fault, or whether Mycenaean showed a number of possibly unique developments which are simply not reflected in later Greek dialects.

This same ra_2 sign is also used to denote the outcome of an $*-rs-$ sequence in the aorist participle *a-ke-ra₂-te* [agerrantes](?) 'gather' (?) < $*agersantes$ (cf. $\acute{\alpha}\gamma\epsilon\rho\omega$).

The implication seems to be that the outcomes of **-rs-* and **-ry-* had enough in common that they could both be denoted by the sign *ra*₂; possibly we should assume some kind of palatal geminate as the Mycenaean outcome of **-ry-*.⁷⁰ At a minimum this may be taken as an indication that **-ry-* sequences had started to undergo some kind of phonetic development already by the Mycenaean stage.

3.6.4. Sievers' Law and Secondary **y*

A number of processes give rise to secondary instances of **y* in Greek, and in no case have we found evidence to support the idea that Sievers' Law once applied to them (see throughout §3.5).

We found no evidence for Sievers' Law among examples of secondary **y* which arose in individual Greek dialects (most of which were probably created after the second palatalization). Indeed, there were a few counterexamples such as Thess. Κραννοῦννος (< **kranōn-yo-s* < **kranōn-iyō-s*) or κῦρον (< **kūryon* beside κῦριον 'valid' in Attic-Ionic). Arguably, all these examples suggest is that no Greek dialect ever (re-)invented Sievers' Law; they do not have evidential value with regard to the question of whether Sievers' Law should be reconstructed for a much earlier stage of Greek.

Consideration of some obvious counterexamples to Sievers' Law allows us to be sure that, in certain morphological categories at least, Sievers' Law did not govern the distribution of **i* and **y* even before palatalization and the loss of **y*. We know that the replacement of **-iH₂* by **-ya* (by whatever mechanism) created a large number of counterexamples to Sievers' Law such as πᾶσα (< **pansa* < **pant-ya* < **-iH₂*) or feminine thematic participles such as Att.-Ion. -ουσα, Lesb. -οισα, etc. (< **-onsa* < **-ont-ya* < **-iH₂*); so we can be sure that if Sievers' Law operated as a general phonological rule in the grammar of Greek at some earlier stage, either it had already broken down to some extent by the time **-iH₂* developed to **-ya*, or else this change was instrumental in its breakdown. Since the change of *-iH₂* to **-ya* pre-dated the first palatalization, this is another indication that Sievers' Law did not function as a synchronic phonological rule at the time of the first palatalization. It is not legitimate to use such counterexamples to suggest that Sievers' Law did not operate in Greek phonology at some earlier stage.

We found traces of a devocalization rule operating across a morpheme boundary in a limited number of cases. Some examples are of Indo-European antiquity and others are likely to be developments in the history of Greek. Mycenaean *za-we-te* shows us that there is at least one pre-Mycenaean instance of the process which cannot be reconstructed for Indo-European. In a couple of instances we argued that counterexamples to Sievers' Law were generated by this rule, such as λεῖσσον '(white) pith of a fir tree' < **lowky-o-* < **lowki-* + *-o-* and perhaps the word for 'egg', e.g. Ion. ᾠόν (< **ōwyom* < **ōwi-o-m*, if it really has to involve a stage **ōwyom*). But the significance of these is difficult to assess, because the rule appears to be ongoing rather than necessarily belonging to one point in the history of the language, and we do not have a firm notion of the chronology of these particular examples.

⁷⁰ See Ruipérez (1972), Heubeck (1979), and Risch (1979).

We must conclude that while evidence for Sievers' Law cannot be found among such examples, the secondary nature of this evidence does not allow us to rule out the possibility that Sievers' Law operated at some earlier stage. Secondly, we can rule out using any of the morphological categories involved here in any straightforward fashion for understanding the distribution of semivowel syllabicity which Greek might have inherited. Thirdly, these examples give us information about the chronological limitations on any potentially inherited Sievers' Law distribution; even if we find convincing evidence for Sievers' Law phenomena in Greek, we cannot suppose that there was a generally applicable rule of this kind in the phonology of Greek beyond the point when the earliest of these new instances of **y* developed.

3.6.5. Conclusions

It seems clear that if Greek inherited Sievers' Law, it did not continue to apply as a general phonological rule for very long beyond the stage where various new instances of secondary **y* were created. It is difficult to know whether the change of word-final **-iH₂* to **-ya* would have provided the earliest class of exceptions to Sievers' Law or whether devocalizations of **-i-* + **-V-* sequences across a morpheme boundary had created exceptions at an even earlier stage.

After these changes, any potentially inherited Sievers' Law could only have been construed as a category-specific rule in the synchronic grammar, but, in principle, the fundamental nature of the alternation and its conditioning factors could have remained the same in any domains where it continued to apply. The first and second palatalizations might have interfered somewhat with the potential for any inherited Sievers' Law to continue in its inherited form, since the surface phonology underwent a significant change. However, insofar as one takes the view that the first palatalization could be 'undone' in forms where there was a transparent morpheme boundary between dental-final stems and suffixes beginning with **y*, the capacity to analyse such configurations as involving a sequence *stop* + **y* clearly remained for some time after the first palatalization. This being the case, it would not be unthinkable for any potentially inherited Sievers' Law, or a category-limited version of it, to have continued to operate in the synchronic phonology in much the same way as before, with an additional rule of palatalization applying to its output.

The last moment at which Sievers' Law could have functioned in anything like its original form in *any* Greek morphological category would have been the time when the products of palatalization ceased to be analysed as underlying *stop* + **y* sequences in the synchronic grammar. This stage of development is clearly signalled by the ability to create analogical examples such as *τάσσω/τάττω*.

From the point of view of our enquiry, it seems clear that, in order to understand the inherited distribution of semivowel syllabicity, we should look only to inherited examples of post-consonantal prevocalic **i* and **y*. This observation has the effect of considerably delimiting the evidence which we can bring to bear. Secondary examples of **y* are unusable. We have already seen that the optatives in **-yeH₁-* yield no decisive examples. Equally, the significance of the full-grade forms of the feminine suffix **-iH₂* are susceptible to so many interpretations that

their contribution is highly theory-dependent. We are left with essentially three categories of evidence: the primary comparatives in **-yon-/*-iyon-* and **-iye/os-/ *-ye/os-*, the nominals in **-ye/o-* / **-iye/o-*, and the verbs in **-ye/o-*. Analysis of these categories will constitute the bulk of the remainder of this study.

3.7. PHONOLOGICAL PROBLEMS

Having delimited the range of morphological evidence that may be used in this study, it is also necessary to delimit the range of phonological configurations that can yield decisive results. We need to consider some difficulties in interpreting certain phonological sequences, because in some cases it is difficult to know whether to reconstruct **i* or **y* in any given instance.

A number of word-internal sequences involving post-consonantal prevocalic **y* are extremely difficult to understand with any degree of precision. Intervocalic sequences of **-sy-*, diphthongs followed by **-syV-*, intervocalic **-wy-/*-wiy-*, and **-Hy-* all present special problems of interpretation.

3.7.1. The Loss of **-sy-* after Vowels

There has been a great deal of debate as to the regular phonological outcome of a **-VsyV-* sequence. We find in Homer two forms of what seems to be the same verb *τελέω* and *τελείω* ‘complete, finish’, apparently denominatives of *τέλος* (n.) ‘end, goal, etc.’ This *-είω* form is not shared e.g. by Attic, which has only *τελῶ*. If both Homeric forms go back to **teles-yō*, then the regular outcome of the **-sy-* sequence stands in doubt. Similarly the thematic genitive singular ending has two distinctive forms *-ου* (< *-oo*) and *-οιο* (cf. Myc. *-o-jo*), which are often traced back to a common form **-osyo* (cf. Ved. *-asya*).⁷¹

3.7.1.1. The *-ει/-ε-* Contrast

There are a few instances like *τελείω/τελέω* in Homer with variant forms apparently going back to **-sy-*. We can be reasonably certain that such forms originally involved a sequence **-s-ye/o-*, if they are verbs, because we do not find a variant verbal suffix **-iye/o-* in unambiguous contexts:^{72,73}

⁷¹ It might be possible to justify reconstructing an alternative ending **-so* for genitive singular *-ου*, on the basis of the Germanic genitive **-o-so*. However, given that the kind of phonological variation seen here is not restricted to the genitive, it seems more parsimonious to attempt an explanation of the genitive in this wider phonological context.

⁷² There is no special attempt to be comprehensive in what follows. The forms listed in this section are those I have come across in cataloguing the **-ye/o-* verbs in Greek and the **-ye/o-* nominal forms more generally. I leave aside the **-ya* feminines for the most part, except where they provide unique evidence in particular phonological environments.

⁷³ It is not clear whether *κλέϊω* ‘celebrate, praise, proclaim’ (Hom.) beside *κλέος* (n.) ‘fame, renown, etc.’ belongs here. It seems to be denominative from < **kleweō* < **klewes-ye/o-*; cf. Ved. *śravasyāti*

ep. *νεικεῖω* and *νεικέω* (Hom., Hdt.) ‘quarrel, abuse’ < **neykes-ye/o-*; cf. *νεῖκος* (n.) ‘feud, strife’ (Hom.), Lith. *ap-nikti* ‘attack’, Hitt. *nini(n)k-* ‘set in motion, mobilize’, etc.

With nominal examples we can be far less certain about the reconstruction, because we cannot rule out the possibility that we are sometimes seeing the reflex of **-s-īye/o-* rather than **-s-ye/o-*, **-īye/o-* being a far more common nominal suffix than **-ye/o-*:

κῆδειος ‘worth caring for, beloved, relative’ (Hom., trag., ἐπικῆδειος Pl.) and *κῆδεος* (hapax at Il.23.160) built from a stem **ḱeH₂d-es-*; cf. *κῆδος* ‘care, mourning; familial connection’ (n.), Dor. *κᾶδος*, Goth. *hatis* ‘hate, anger’, and with an *r*-stem Av. *sādra-* ‘grief, pain, disaster’ (for further possible cognates, see Beekes 2010:648).

It is unclear how to understand Hom. *τέλειος*, *τέλεος*, Cret. *τελῆρος*, and *τέλεως* from Cos beside *τέλος* (n.) ‘goal, end’. Beekes (2010:1463–4) suggests three possible reconstructions, **teles-yo-s*, **teles-wo-s*, and **tele-iyos*.

The situation is confusing, because on the one hand the non-diphthong reflex *κῆδεος* is uniquely epic, while the diphthong reflex *κῆδειος* is a little more widespread, but on the other hand the diphthong reflex *νεικεῖω* is epic, while *νεικέω*, without a diphthong, also occurs in prose. It is not immediately clear that one phonological outcome or the other can be considered more or less characteristic of ‘poetic’ texts.

Only a few examples are found in a fixed form with the non-diphthongal reflex and, as far as I can tell, they are all verbs, making us reasonably certain that they go back to forms containing a sequence **-s-ye/o-*:

αἰδέομαι ‘hold back, revere’ (Hom., Att.-Ion.) < **aydes-ye/o-* beside *s*-stem *αἰδώς* (see Beekes 2010:34). Compare the different treatment of *αἰδοῖος* (Hom., and ep.) < **aydos-(i)ye/o-* and *αἰδείη* (Hom., Hdt, Att.);

Possibly *ἄξεομαι* ‘cure, repair’ (Hom., Hdt., Hp., etc.) beside *ἄκος* (n.) ‘cure, medicine’ (see Beekes 2010:54);

Possibly *εὐθενέω* ‘thrive, flourish’ (A. etc.) < **ewt^henes-ye/o-(?)*; cf. *εὐθενής* (Hsch.). However, the whole question of the origin of this verb is in doubt. Firstly, we know that *-έω* verbs can be formed directly from *-ης* adjectives without necessarily having a deep prehistory, but in a case like this where the supposed base *s*-stem form is attested much later (and more rarely) than the verb itself, then the basis for positing an ancient *s*-stem in the first place may be undermined. The question of the etymology is further confused in this case by the presence of several different phonological variants (see Beekes 2010:478–9).

Many more forms are found in one fixed shape, with the diphthongal reflex, but these are mostly nominal, leaving open the possibility that some of these reflect a sequence **-s-īye/o-*:

‘praises’. However, there is also *κλέω* (B., trag.), which is difficult to explain on this basis. It could be due to hyphaeresis, or it could be a primary formation **klew-e/o-*; for discussion, see Chantraine (1999:540–1).

Possibly ἄρειή ‘threat’ (Hom.), if it is connected with Ved. *irasyā* ‘malevolence’ < **H₂rH₁-es-* (see Peters 1986:371ff.). But this is very uncertain;⁷⁴

ἔλεις ‘marshy’ (Att.-Ion.) finds a direct counterpart in Ved. *sarasiya-* (see *EWAia* II 708) and sits beside an *s*-stem neuter ἔλος ‘marsh’ < **selos*; cf. Ved. *sáras-* ‘pond’;

ἔρκειος ‘courtyard’ (Hom.) < **serkes-(i)ye/o-*; cf. ἔρκος (n.) ‘fence’ (see Beekes 2010:460–1 for possible Indo-European connections for this root);

ἔτειος ‘yearly, lasting a year’ (Pi., trag., etc.) < **wetes-(i)ye/o-* beside ἔτος ‘year’ (see Beekes 2010:476–7);

θεῖος ‘divine’ < **d^hH₁s-(i)ye/o-*; cf. θεός < **d^hH₁s-e/o-*, θέσ-φατος ‘decreed by a god’, Lat. *fēriae* ‘festive days’, *fānum* ‘temple’ < **d^hH₁s-no-m*;

ὄρειος ‘mountainous’ (*h.Merc.*244) < **ores-(i)ye/o-* beside ὄρος (n.) ‘mountain’ (Hom.). This may contain the root **H₃er-*; cf. ὀρνυμαι ‘rise’.

Only one of these examples is verbal:

ὀνειδείω ‘blame’ (Thebaïs Fr. 3) < **H₃neyd-es-ye/o-* and ὀνειδείη (Nic.) beside neuter ὀνειδος ‘reproach, rebuke’; cf. Arm. *anicanem*, Goth. *ga-naitjan*, Lith. *niedėti*.

3.7.1.2. Explaining the -ει/-ε- Contrast

Kiparsky (1967:629–33) thought that the contrast between diphthong and non-diphthong outcomes could be explained essentially in terms of dialect differences and produced an account that applied not only to the -ει/-ε- contrast but also to -οι/-ο-. Although Lesbian and Boeotian show essentially the same genitive ending as Attic-Ionic and Doric -οι/-ω, Thessalian has -οι(ο) like Homeric -οιο < **-osyo*; we might plausibly suppose that instances of Homeric -οιο represent Aeolic features (which were subsequently abandoned in some Aeolic dialects because of the pressure from the surrounding linguistic environment). In a similar fashion, τελείω could represent an Aeolicism in Homer and τελέω could be the regular Ionic outcome. Kiparsky supposed that the Attic-Ionic examples with a diphthong outcome, like αἰδοῖος, represent morphological restorations and only occur where there was a clear morpheme boundary splitting the *-s-y- cluster. Of course, the only example where there is no such boundary is gen. **-osyo*, and so the level of explanatory value which can be gained from this supposition is limited.

Ruijgh (2004:51–2 and n. 15) takes a different line and supposes that τελείω is the regular outcome of **teles-ye/o-* in Homer’s Ionic and that τελέω is a primary verb remodelled from an athematic **telēmi*, which would share the sigmatic aorist Att.-Ion. ἐτέλεσα in common with the denominative verb. Of course such an explanation would not be available in our attempt to understand the opposition between nominal examples like κήδειος and κήδεος.

The Mycenaean evidence is difficult to interpret. We find a fair number of derivatives of *s*-stems that might involve a sequence *-*esyV-*, but these are spelled

⁷⁴ For a brief discussion of the potential connection with ἐπήρεια ‘ill treatment, offence’, see Beekes (2010:128, 439).

in two different ways: with the stem **klewes-* we find the patronymic *e-te-wo-ke-re-we-i-jo*, but from *teles-* we find the derivative verb *te-re-ja-e*. We find both types of spelling for an adjective from **keras-* ‘horn’: *ke-ra-i-ja-pi* and *ke-ra-ja-pi*. Lejeune (1972:132–3) attributed the general vacillation in spelling in all of Greek to a tendency to selectively degeminate **-yy-* < **-sy-*. But this theory has no more predictive power than any other. Indeed, as Kiparsky (1967:629–30) pointed out, since putative **-yy-* geminates from **-wy-* and other sequences do not undergo this supposed degemination, it does not seem the best explanation of the process. Any account of the Mycenaean orthography clearly needs to take into account the possibility that a sequence **-esiyV-* might have a different spelling from that of a sequence **-esyV-*, and this could perhaps be achieved by looking at the **-ye/o-* verbs and **-ya* feminines separately, where the non-syllabic semivowel is practically guaranteed.

Occasionally, Homer preserves a hiatus in forms which once contained intervocalic **s* preceding **i*, but without consistency, e.g. dat. sg. ὄρεϊ/ὄρει < **oresi*. Indeed, there do not appear to be any clear instances where intervocalic **i* survives in hiatus as a result of the loss of **s*, giving a sequence of three vowels, i.e. **ViV* < *-VsiyV-*. Certainly, we could expect no guarantee that the outcome of a sequence **VsiyV* would look any different from **VsyV* for any given example.⁷⁵

If we temporarily restrict ourselves to discussing verbal examples where we can be sure that the original phonological sequence involved **-s-ye/o-*, and if we only consider the behaviour of examples with an outcome *-ει-* or *-ε-* for the moment, then it is possible to see that the diphthongal outcomes in alphabetic Greek are found only in epic, i.e. τελείω, νεικείω, and ὀνειδείω. The forms with an outcome *-εω* are found in a wider range of texts, including epic, Attic, and Ionic, i.e. τελέω (Hom.), νεικέω (Hom., Hdt.), αἰδέομαι (Hom., Att.-Ion.), possibly ἀκέομαι (Hom., Hdt., Hp., etc.), and possibly εὐθενέω (A. etc.). It seems pretty plausible to follow Kiparsky (1967:629–33) in supposing that the diphthong outcomes are Aeolicisms preserved in the epic tradition, while the non-diphthong outcome is regular in Attic-Ionic and so naturally occurs also in epic.

Nominal examples are much more difficult to use, because we cannot be sure whether to reconstruct **-ye/o-* or **-iye/o-* in any given case. Forms with diphthong outcomes could conceivably reflect either origin in ἀρειή, ἔλειος, ἔρκειος, ἔτειος, θεῖος, and ὄρειος. If we take the word equation of ἔλειος ‘marshy’ and Ved. *sarasīya-* ‘seriously’, then we might reasonably conclude that ἔλειος results from **seles-iye/o-*. The forms with variable outcome like κήδειος/κήδεος might conceivably represent dialectal differences of the same kind seen in the **-ye/o-* verb examples, if we felt able to reconstruct a suffix **-ye/o-* here. However, the distribution of forms does not conform to expectation. While the occurrences of κήδειος in tragedy might be put down to epic influence, it is less easy to understand why we find ἐπικήδειος in Plato.

We would predict from these observations that forms with a sequence **-esyV-* would exhibit a diphthong outcome in Aeolic and could have a diphthong in epic (but need not), and should have a non-diphthong reflex in other dialects,

⁷⁵ The form γελοῖος ‘amusing’ at Il.2.215 cannot realistically provide evidence in this argument; it cannot represent the preservation of a form **gelosiyos*, since this would not fit into hexameter verse. We cannot give any great weight to ἑώιος ‘of the morning’ (A.R.), given the late date of attestation.

provided that there has not been epic influence. One obvious test for this theory would be to look at the outcomes of forms with the **-ya* feminine suffix. But a survey of these forms falls outside the scope of what we can achieve here. On the other hand, **-es-iyV-* sequences should probably yield a diphthong reflex, but we cannot necessarily know in advance whether a form had **i* or **y*; after all, in most situations, this is precisely what we are trying to establish.

If this conclusion is right, then it is terribly difficult to make use of evidence with these phonological configurations. If we find a form with a fixed diphthong outcome, then the interpretation depends to a certain extent on the dialectal distribution of forms. If the form has a provenance in epic diction, then the possibility exists that the original sequence was **-esyV-* and the Aeolic outcome may have been adopted elsewhere through the influence of Homer. On the other hand, a form with a fixed diphthong outcome might equally well indicate an original sequence **-esiyV-*, except in morphological categories where this is ruled out by the lack of evidence for syllabic **i* in other unambiguous contexts. Forms with a fixed non-diphthong outcome might go back to a sequence **-esyV-*, but unless we have reason to believe that a particular suffix is involved, then it would usually be difficult to rule out an alternative reconstruction **-esV-* without a semivowel. If a form exhibits alternation, then a reconstruction **-esyV-* seems much more secure, but the range of evidence is vastly reduced.

3.7.1.3. Outcomes with Other Vowels

The outcome is much clearer when the preceding vowel is *a*, *o*, or *u*, since we fairly consistently have a diphthong outcome regardless of morphological category:⁷⁶ The most glaring exception is gen. *-οιο/-ου*, which is difficult to explain away unless we assume two distinct origins, or follow Kiparsky (1967:629–33) in arguing that the outcome was affected by the presence of a morpheme boundary in all examples except *-οιο/-ου*:

Hom. *λιλάιομαι* ‘desire, long for’ is from **li-las-ye/o-*, if we can compare *λάσται· πόρνοι* ‘whores’ (Hsch.); cf. Lat. *lascīvus* ‘luxurious, wanton’, Russ. *láska* ‘caress, affection’, Skt *lā-las-a-* ‘desirous’. However, these forms point towards IE **las-*, which is only acceptable if we choose to reconstruct **a* for Indo-European;

Less certain is Cret. *λαγαίω* ‘release’, cf. aor. *λαγάσσαι· ἀφεῖναι* (Hsch.), which might be based on a Greek innovated *s*-stem, since other Indo-European

⁷⁶ This claim for consistency might be undermined by *μῦα* ‘fly’ (Hom.) < **mus-ya* (cf. Lith. *musià*, Lat. *mūs-ca*, etc.), which has a variant *μῡα* (Thphr., Phot.). However, this word has so many variants across Indo-European, including forms without **s* (e.g. ON *mý* < Proto-Germanic **mu-ya-*), that it is difficult to draw any firm conclusions on this basis.

We find the **-ye/o-* verb *κεραίω* ‘mix wine stronger’ (Il.9.203) < **keras-ye/o-*, which seems to be built from an extended version of the same root found in *κεράννυμι* ‘mix’ < **kerH₂-*; cf. the same analogically extended stem also found in *κερέρασμαι*. It might seem that collateral *κεράω* (Hom. etc.) could represent a different phonological outcome of **keras-ye/o-*, but there can be no certainty here, since we could simply have **keras-e/o-* or a thematic formation built from the basic stem **kera-* < **kerH₂-*.

cognates do not support a stem **lagas-*; cf. λαγάρος ‘slack, thin’, ON *slakr*, OIr. *lac*, etc. all meaning ‘slack’ (see Beekes 2010:819–20);

ναίω ‘live, inhabit’ (Hom.) possibly < **nas-ye/o-*, cf. aor. ἔνασσα (see Beekes 2010:994). However, **nas-* itself may be a restructuring of zero-grade **as-* < **ns-*, if we are to compare νέομαι < **nes-e/o-* ‘reach a place, get home, etc.’ (see LIV² 454–5);

γεραρός ‘old’ (Hes.) < **geras-(i)ye/o-* < **gerH₂s-(i)ye/o-*, cf. γέρας < **gerH₂-s-* (see Beekes 2010:267–8);

οὔδαρος ‘on/under the ground’ (Lyc. etc.) < **owdas-(i)ye/o-* beside οὔδας (n.) ‘ground, soil’ (Hom.).

αἰδοῖος < **aydos-(i)yo-s* ‘inspiring αἰδώς’ (for possible comparative evidence, see Beekes 2010:34);

γελοῖος ‘laughable’ **gelos-(i)ye/o-*, beside *s*-stem γέλως, (-ωτος) < **gelH₂-ōs*, cf. Arm. *calr* ‘laughter’ (see Beekes 2010:264–5);⁷⁷

ῥοῖος (Hom., Hdt.), Dor. ῥοῖος, Att. ῥῶος, Myc. *a-wo-i-jo* ‘of the morning, eastern’ < **awsos-(i)ye/o-*, from the *s*-stem **awsōs* (> Hom. ἔως etc.).

perf. pple f. -υια < **-us-ya*.⁷⁸

Where the preceding vowel was **i* then the result is a lengthening of this vowel:

Denominative κονίω ‘cover with dust’ < **konis-ye/o-*, built from *s*-stem κόνις ‘dust, ashes’; cf. Lat. *cinis*, *-eris* < **kenis-*.

Beside οἶομαι ‘think, believe, etc.’ (Hom. etc.) we find Hom. ὀτομαι and ὀτῶ, with both *ī* and *ĩ*. Beekes (2010:1059–60) considers these forms to be denominative in origin, from an adverb **H₂owis*, for which compare Ved. *āviṣ* ‘evident, before the eyes’. Such a root **H₂ewis-* might also be found in ὄϊω ‘perceive’. If this is correct then we could reconstruct a verb **H₂owis-ye/o-*.⁷⁹

It seems highly unlikely that any of these examples can be used to provide independent testimony in our enquiry, because there is no indication that the syllabicity of the semivowel makes any difference to the alphabetic Greek outcomes. For this reason, forms with the shape **-Vs(i)yV-* must be left to one side when we are considering the validity or otherwise of Sievers’ Law in Greek.

⁷⁷ There is no need to suppose that γέλαω ‘laugh’ is from **gelas-ye/o-*, since there is no persuasive phonological or morphological motivation for reconstructing a **-ye/o-* suffix.

⁷⁸ Compare βιδυ(ι)οι, the name of a Spartan official, if we reconstruct **widus-ye/o-*, based on the perfect participle stem of the root **wid-*; see Chantraine (1999:175–6) and Beekes (2010:214).

⁷⁹ We might see another example of this phonological development in Hom. χῆρος ‘ram’, if Forssman (1996:304) is right to connect Goth. *hrisjan* ‘to shake’ < **kris-ye/o-*, and on that account we might reconstruct a nominal form **kris-ye/o-*. However, the semantic links are not so close that we are obliged to make this comparison.

De Vaan *apud* Metasović (2008 s.v. *wisu-*) explains the long vowel in ἵος ‘poison’ by positing **wis-ye/o-*; cf. Toch.A *wās*, Toch.B *wase*, and Ved. *viśá-* < **wiso-*. However, the matter is not certain because a long root vowel is found in Lat. *vīrus* and Mir. *fi*. The long vowel in Latin might arise through levelling from the nominative of a supposed root noun **weys*, **wis-os* (see de Vaan 2008:682–3).

3.7.2. The Loss of *-sy- after Diphthongs

In a number of etymologies it has been suggested that a sequence *-VwsyV- should be reconstructed. Such sequences would violate Sievers' Law under any definition, and naturally we need to examine this evidence closely.

It has been argued that we should derive ἀκούω 'hear, obey, be called' (Hom. etc.) from *H₂kows-ye/o-. The standard explanation is that it is a denominative verb from a compound involving the same morphemes as we see in ἄκ- 'sharp' < *H₂ek̑-⁸⁰ and οὖς 'ear', and that the original meaning of the verb would have been 'be sharp-eared'. An obvious derivational parallel presents itself in ἀκροάομαι 'hear, obey' from a compound consisting of ἀκρος 'highest, topmost, etc.' and οὖς 'ear'.

This is a very tempting analysis. If ἀκούω is a denominative, then a *-ye/o- verbal suffix is the only viable derivation on a morphological level, and indeed this is clearly what we have attested in Goth. *hausjan* 'hear' < *H₂kows-ye/o-. The Greek phonological evidence is less direct, but if there were no *-ye/o- suffix, then according to purely phonological considerations, we might have expected a verb *ἄκωω, perhaps alongside a dialectal variant ἀκούω, just as we see ἀκοή 'hearing, ear, etc.' < *akōā < *akows-ā beside Hom. ἀκουή, with loss of the intervocalic cluster *-ws- and probably a shortening in hiatus of any long vowel which had resulted from compensatory lengthening; we may compare the same phonological development in the perfect ἀκήχοα (see Beekes 2010:55). The failure of this development could be considered indirect evidence that the intervocalic cluster was not *-ws-, but something else, perhaps *-wsy-. A sequence *-wsiy- is certainly ruled out because the *i should have survived and been written, i.e. we might expect *akowsiye/o- > *akōiye/o-, yielding *akoīō/*akoiō, perhaps with a dialectal variant *akouiō. From this point of view, ἀκούω represents a strong counterexample to Sievers' Law, both in Greek and, insofar as it appears to be inherited, in the common ancestor of Greek and Gothic—i.e. Indo-European.⁸¹

Parallel phonological (though not morphological) reasoning can be applied to χρούω 'strike, knock', which has a root *krows-; cf. OCS *-krušiti* < *krus-, Lith. *kraušyti*. If the verbal stem only consisted of this root with the thematic vowel, then we might have expected *krōō < *krows-e/o- (cf. ἀκοή < *akōā < *akows-ā and indeed the collateral present χροαίνω, Hom.). A slightly different cluster of phonemes would seem to be involved, and therefore one is tempted to posit *krows-ye/o-.⁸² The same arguments could be applied to other Greek diphthong-final verbal roots from Indo-European roots which originally ended in *-s-, e.g.:

⁸⁰ As evidence for the initial laryngeal, also compare νηκουστέω 'disobey' < *n-H₂kows-.

⁸¹ Note that in Gothic this verb obeys Sievers' Law, but, given the ongoing nature of Sievers' Law effects in Germanic, this cannot mitigate the failure to find the reflex of a suffix *-iye/o- in Greek.

⁸² From the same verbal root Beekes (2010:781) wants to derive χροιός, which is used of λίθοι in IG 2², 244:63 [IV^a] and glossed as νοσώδης, ἀσθενής 'sickly, feeble' by Hesychius. Chronology is crucial, since Beekes has to assume that this adjective was built from an intermediate development of the present verbal stem *kroww- (< *krows-), giving nominal *kroww-ye/o- > χροιός. If the adjective had been built directly from the root *krows-, then we might have expected either *kroos < *krows-e/o- (cf. ἀκοή < *akōā < *akows-ā) or *krouos < *krows-ye/o- (if we temporarily work on the assumption that ἀκούω comes from *akows-ye/o-). However, all this seems rather speculative: the phonological development is unparalleled; furthermore, it is not clear that one can form *-ye/o- adjectives directly

γεύομαι ‘taste’ (Pi., A., etc.) involves the root **gews-* (cf. ἄ-γευσ-το-ς ‘not tasting, inexperienced’, Goth. *kiusan* ‘taste, choose’, Lat. *gustāre*);
 εἶω ‘sing’ (Hom.) < **H₁ews-* (cf. Lat. *ūrō*, Ved. *ósati*, etc.).

However, this whole approach is open to considerable doubt on a number of grounds and, indeed, we shall see that this phonological line of reasoning produces some clearly etymologically false results.

There are a number of independent grounds for being suspicious of the traditional account of ἀκούω. We should note that the good parallel of ἀκροάομαι shows that this is the sort of verb which could potentially have been made and remade independently several times and that, in consequence, the Gothic parallel is not altogether unassailable. We should also note that, as a supposedly early denominative, ἀκούω is rather unusual in forming a full system of tense stems from the earliest stage, rather than just a present stem (of course this might merely indicate that it was unanalysable in Greek as a denominative and was treated just like a primary verb). Perhaps the most unusual point concerns the vocalism in the last syllable of the stem. We never find *o*-grade denominative verbs like this elsewhere in Greek; **-ye/o-* denominatives induce the zero grade of the last part of the preceding nominal stem, or else induce deletion of a preceding thematic vowel.

This last point leads to the crucial observation that Greek is unique in showing *o*-vocalism in the word for ear; cf. Lat. *auris*, *aus-cultō* ‘eavesdrop’, Goth. *ausō*, Lith. *ausis*, from a full-grade root **H₂ews-*. Indeed, the original *a*-vocalism may be seen in ἄτα· ὦτα Ταρεντίνοι (Hsch.), if it is from **aws-ata*, and certainly in παρειαί ‘cheeks’ < **para-aws-īye/o-*. It seems that elsewhere this original vocalism has been replaced, in e.g. nom. sg. οὖς (Old Attic ος) < **H₂ows-s*, gen. ὠτός (Hom. οὔατος < **ows-ntos*); cf. Myc. *a-no-wo-to*, i.e. [*an-ōwotos*], and ἄμφωτος (Theoc.); see Beekes (2010:1130–1).

Therefore, insofar as ἀκούω is a denominative containing the word for ‘ear’, it cannot represent the direct cognate of Goth. *hausjan*, but must be a replacement. We cannot be sure when this replacement took place. We cannot be sure whether the original verb obeyed Sievers’ Law or not. For all we know it could be that an original denominative **akawsīō* was replaced after Sievers’ Law stopped functioning, but we just do not know and we cannot use ἀκούω as evidence for the ancient behaviour of semivowels under this analysis.

However, the evidence of ἀκούω cannot be left aside yet. It has also been suggested that ἀκούω (along with Goth. *hausjan*) could be a primary verb built from a root **H₂kews-/H₂kows-* rather than a denominative. Such a supposition might be bolstered by the gloss ἀκεύει· τηρεῖ, Κύπριοι where τηρεῖ means ‘watches over, observes’ (Hsch.), which rather suggests a root **H₂kews-*. Under this analysis, the morphological argument that ἀκούω needed to be a **-ye/o-* formation disappears, but we would still have to explain the survival of a prevocalic diphthong.

If we imagine a present stem **akoō* < **H₂kows-e/o-* and an aorist ἤκουσα < **H₂kows-s-*, then it is fairly obvious, from a paradigmatic point of view, that there would have been considerable pressure from the aorist to preserve or restore the diphthong in the present stem. Indeed, almost all the diphthong-stem

from verbal roots; the only potential parallel is the noun θάλλος ‘young shoot, branch’ beside θάλλω ‘sprout, grow, thrive’, but it is more likely that θάλλος is formed from θάλος (n.) ‘sprout’.

verbs in Greek have rebuilt their presents after the aorist; cf. Att.-Ion. βασιλεύω ← **basileiō* < **basilēw-ye/o-* (cf. El. βασιλείω), with the diphthong restored from the aorist ἐβασίλευσα. These arguments apply equally to χρούω beside its sigmatic aorist ἔχρουσα < **e-krows-sa* and γεύω beside ἔγευσα, and εὔω beside εὔισα.

Furthermore, the reasoning that a preserved *Vw*-diphthong in a present stem presupposes a sequence **-wsy-* produces strange results in cases such as νεύω ‘nod’ (Hom.), which Frisk (1991:309) reconstructs as **news-e/o-* or **news-ye/o-* on the basis of the retention of the *ew*-diphthong; the comparative evidence speaks in favour of a root **new-* rather than **news-* (cf. Lat. *ab-nuō* ‘refuse, deny’, *ad-nuō* ‘nod, permit’, etc.); see LIV² (455–6) and Beekes (2010:1011) for discussion of this root shape. The diphthong in the present may simply be due to that of the aorist ἐνευσα (Hom.).

3.7.2.1. αῖος

An original sequence of a diphthong followed by **-sy-V-* has been posited in the case of the adjective αῖος (sometimes αῖος in Ar., Arist., and Call.) ‘dry (Ar., Arist.)’, for which a stage **saws-ye/o-* has been supposed (see Peters 1980:11). However, Lubotsky (1985), followed by Beekes (2010:171), reconstructs a root **H₂sews-/H₂sus-* lying behind this noun and the verb αῖω ξηραίνω ‘dry up’ (Hdn.), Ved. *súsyati*, OCS *suxъ*, etc. Such a root would not have acquired a heavy stem until after the loss of intervocalic **s*, if we suppose a development **H₂sus-ye/o-* > **asus-ye/o-* > **ahuh-ye/o-*. Since it is demonstrably not the case that Sievers’ Law survived as a generally applicable synchronic rule into post-Mycenaean times (i.e. a time when intervocalic **s* would have been lost completely), there can be no expectation that a form like αῖος/αῖος should conform to Sievers’ Law. Even if this had not been so, if the root is reconstructed in this way then we have no guarantee of a **-ye/o-* formation in Greek rather than a simple thematic formation **H₂sus-e/o-*, which should give the same result.

3.7.3. The Development of **-wy-* and **-wiy-*

The historical development of intervocalic **-wy-* sequences in alphabetic Greek proves to be rather difficult to establish with certainty, as we have already seen to some extent when considering the origin of the word for ‘egg’. Furthermore, it is often difficult to be sure that we should not reconstruct **-wiy-* rather than **-wy-* in many instances. The first-millennium outcomes of reconstructed **-Vw(i)yV-* sequences are usually prevocalic *i*-diphthongs or, where there was a preceding *i*-vowel, the outcome seems to have been a long *ī*. For morphological reasons it seems likely that we have a **-wy-* (rather than **-wiy-*) cluster in forms such as καίω ‘kindle, burn’ < **kaw-ye/o-*, El. βασιλείω < **g^wasilēw-ye/o-*, γλυκεῖα ‘sweet’ < **glukew-ya*, and δῖα ‘divine’ < **diw-yā*, since there are very few certain examples of **-iyā* feminines, and no certain examples of **-iye/o-* verbs. From this evidence alone it would not be clear whether we should assume an assimilation **-wy-* > **-yy-* in such forms, or loss of **w* with retention of the then intervocalic **-y-*, or

indeed a metathesis $*-wy- > *-yw-$ (just as $*-Ry- > *-yR-$ after some vowels, by whatever mechanism) with subsequent loss of $*w$.

The Mycenaean evidence, where the clear preservation of $*w$ in all positions might promise a degree of clarification, actually complicates the question in a number of respects. It is not at all clear that we have a proper understanding of the Mycenaean spelling conventions governing the representation of $*-wy-$ and $*-wiy-$ sequences. We find an orthographical alternation in Myc. *di-wi-ja/di-u-ja*. If this is a $*-ya$ feminine formation, then it seems reasonable to suppose that these variants are an attempt to represent a sequence $-wya$, i.e. [*diw-ya*] < $*diw-iH_2$. This conclusion is also graphically plausible: writing <-u-ja> for [-wya] is understandable, but it is less easy to see why <-u-ja> would be used for [-wiy-a]. However, we find the same variation in spelling in Myc. *di-wi-jo/di-u-jo*, which, on comparative grounds, probably ought to reflect $*diw-iyō-s$, on the basis that the Rigveda has *diviya-* 66 times, while *divya-* occurs just 25 times.⁸³ The alphabetic Greek evidence does not resolve the question, since $διος$ could come from $*diw-yō-s$ or $*diios$ < $*diw-iyō-s$.⁸⁴ The interpretation of forms such as *me-u-jo/me-wi-jo* depend entirely on our understanding of examples with independent evidence. It is not clear that the Mycenaean spelling really denotes the syllabicity of the semivowel in any straightforward fashion.⁸⁵

The Mycenaean evidence raises phonological as well as orthographical problems. We might have expected that the feminine form of an $-ευς$ noun such as *i-je-re-u* 'priest' would provide further evidence for $*-wy-$ sequences, but instead of the expected $*i-je-re-u-ja$ or $*i-je-re-wi-ja$ ($*i(y)erēw-ya$ < $*iserēw-iH_2$), we actually find *i-je-re-ja*, without any trace of the expected $*w$. Similarly, beside *ke-ra-me-u* 'potter', we find *ke-ra-me-ja*.

Heubeck (1963, 1970) explains all these facts by positing a change of $*-wy- > *-yy-$ at a pre-Mycenaean stage, so that <*i-je-re-ja*> represents [*iyerēyya*] < $*-wya$.⁸⁶ He points to personal names such as *U-po-di-jo*, which could incorporate the regular reflex of a $*-wy-$ sequence, if from $*upo-diw-ye/o-$; cf. *Pa-di-jo*, perhaps < $*pan-diw-ye/o-$, and the later equivalent $Πανδιών$, which has become an *n*-stem.

Heubeck supposes that *di-wi-ja/di-u-ja* and *di-wi-jo/di-u-jo* actually represent /*diw-iyā*/ and /*diw-iyē/o-*/ respectively. An alternative would be to suppose that these forms really did contain $*-wy-$ clusters but were analogically (re)built, after the change of $*-wy- > *-yy-$ but before the loss of post-consonantal $*y$ (see Lejeune 1972:171–3). Another possibility would be to suppose that the feminine forms of $-ευς$ nouns were based on a different stem suffix (see Ruijgh 1967:247–61) or showed an analogical suffixation $-eya$ (see Ruipérez 1966:211–16). It has been supposed that the $*w$ survives in Mycenaean but is not written (see Bartoněk 1963:57). Not all scenarios are equally plausible, but certainty is very hard to obtain.

⁸³ Rather confusingly, Beekes (2010:338) reconstructs $*diw-iHo-$ for the Vedic form, but says that the Mycenaean spelling indicates $*diwyos$.

⁸⁴ Lat. *dīus* does not clarify the issue, since it seems possible to explain this outcome starting from $*diwiyos$ or $*diwyos$.

⁸⁵ Lejeune (1972:171–2) supposes a $*-wy-$ cluster in Myc. *diw-yō-s* and *meiw-yoh-*, whereas Ruijgh (1967:130ff.) assumes Myc. *diw-iyō-s* and *meiw-i(y)oh-*.

⁸⁶ See Christol (1975) for a summary of earlier views. For the change $*-wy- > *-yy-$, see also Lejeune (1972:171–2), Peters (1980:316–17 n. 138), and further discussion in Viredaz (1983:174–82).

Supposing a very early (pre-Mycenaean) date for an assimilation of **-wy-* clusters might seem to be inconsistent with the evidence for the metathesis of **-wy-* > **-yw-* suggested by the Hesychian gloss αἰβετός· ἀετός Περγαῖοι < **awy-eto-s* < **awi-eto-s*, and indirectly supported by the parallel treatment of original **-wy-* and **-iw-* sequences in Attic and Ionic. Just as a form like **elaywā* yields Att. ἐλάω ‘olive tree’ beside Ion. ἐλαῖω, so too we find Att. ἀετός and Ion. αἰετός, which might be taken to suggest a stage **aywetos*.⁸⁷ However, the assumption of an assimilation in Mycenaean is not truly at odds with a metathesis elsewhere, for Mycenaean is not the direct ancestor of any of the first-millennium dialects, and it is perfectly possible that assimilation is an idiosyncratic Mycenaean development.

More seriously, from our perspective, it is not clear that we should expect to find a distinctive outcome from **-ŷwyV-* and **-ŷwiyV-* sequences in first-millennium dialects where word-internal **w* was lost, i.e. the dialects from which most of our evidence derives. Myc. *qo-wi-ja* may represent **gʷow-iyā* (see Heubeck 1970:66), but the first-millennium equivalent in Hom. ἐννεά-βοιος does not give any surface indication whether **i* or **y* was originally involved. We know that in this particular instance an extra light syllable would be ruled out in a hexameter verse, but that does not provide an etymological guarantee that there was not originally a syllabic **i* in this form. Similarly, Hom. γένειον ‘chin, beard’ is clearly a derivative from the *u*-stem γένυς, -υος ‘jaw, edge of an axe’ (cf. OIr. *giun*, *gin*, Goth. *kinnus*, Toch.A du. *śanwem*, etc.; see Beekes 2010:267). It is unclear whether we should reconstruct < **genew-ye/o-* or **genew-iye/o-*. One tends to assume **genew-ye/o-* since there are no Homeric forms where we must scan **γένειον*, and indeed such sequence of three light syllables would be ruled out for metrical reasons. But at the same time we cannot be sure that Homer does not simply preserve a form where an original hiatus has been removed. We know that πλοῖον ‘ship’ is derived from the *o*-grade form of the root found in πλέω ‘sail, navigate’ < **plew-e/o-* (cf. aor. ἔπλευσα, Ved. *plávate* ‘swim, flow’, OCS *pluti*, etc.). One tends to assume a suffix with the shape **-ye/o-*, on the basis that we do not find examples which must scan as **πλόιον*, but, once again, the *absence* of such evidence for *[i]* in hiatus does not provide us with a sufficient basis to count such forms as positive evidence for instances of **-wy-* after a short vowel.⁸⁸ From this point of view we cannot use the evidence of potential **-wy-* after light sequences for our enquiry, since we would always be obliged to take an *absence* of evidence for *[i]* in hiatus as positive evidence for **y*. If we had clear evidence that we should expect such a hiatus to be regularly preserved, then the balance of probabilities might be altered.

Naturally, in cases where we have a **-ye/o-* verb or **-ya* feminine, then we may be reasonably certain that **y* is involved, because the variants with a syllabic semivowel are rare or non-existent. But this clearly does not constitute independent positive evidence. For example, we simply take it that ναίω ‘flow’

⁸⁷ The conditions under which Attic shows lengthening and diphthong simplification are not straightforward. The nature of the following and preceding vowel certainly seems to play a role (see Adrados 1950, Rix 1976:63–4).

⁸⁸ Further examples of such indeterminacy might include ἀραιός ‘thin, slender’ (Hom.) < **-w-ye/o-* if the word once had a stem final **w* (see Beekes 2010:122); φλοιός ‘tree bark, outer skin’ (Hom. etc.) < **pʰlow-ye/o-*, cf. φλέω, ἔφλευσα ‘flow, be juicy’, φλόος (Arat., Nic.) < **pʰlowos* (see Beekes 2010:1580); and possibly χέλειον ‘tortoise shell’ < **kʰelew-ye/o-* beside χελύς· χιθάρα (Hsch.), χέλῦς, -υος ‘tortoise; lyre’ (*h.Merc.*, Sapph., A., etc.)—see Beekes (2010:1624).

(Od.9.222) is from **naw-ye/o-* because there are no verbal forms with **-iye/o-* (for the root cf. νᾶω ‘flow, stream’ (Hom.), Hsch. ναύει· ῥέει, βλύζει ‘flows, gushes,’ and Ved. *snauti* ‘drip, yield milk’ < **(s)new-ti*).

The treatment after long vowels is a somewhat different matter. The outcome of a **-V̄wiyV-* sequence depends, in part, on dialect. In a number of poetic texts we find [i] in hiatus preserved, and this constitutes positive evidence for a **-wiy-* rather than **-wy-* cluster. In many dialects this sequence develops into a long pre-vocalic diphthong (often represented with iota subscript), while in Attic such a diphthong is sometimes, but not always, shortened, or undergoes an even greater degree of simplification with complete loss of the high semivowel, which yields a short non-high vowel in hiatus:

Hom. βασιλῆϊον, Att. βασίλειον ‘palace’ < **g^wasilēwiyon*;

Hom. πατρῷος, Att. πατῶος ‘inherited from one’s father’ (if this constitutes a derivative with **-w-*, perhaps cf. Lat. *patruus*, Skt *pitṛvyā-*);

Hom. μητρῷος, Att. μητῶος ‘belonging to the mother’s family, maternal’ from μήτρως, which in turn may be based on a stem in **-ōw-*, if Att. μητρυῖᾶ ‘stepmother’ is connected and contains the zero-grade stem (cf. Arm. *mawru*, gen. *mawrowi* ‘stepmother’ < **mātruwi-*, and OE *mōdrige*; see Clackson 1994:145–7);

Att. λεία ‘spoils, plunder’, Ion. λήϊη (we cannot know whether the *i* was in hiatus because this form is not found in verse, though Homer has λῆϊς; cf. Dor. λαῖς), from the verbal root **leH₂u-*; cf. ἀπολαύω ‘enjoy’ (Peters 1980:305 reconstructs **leH₂w-iH-eH₂*);

Hom. λῶϊον ‘better, more desirable’, Att. λῶϊον may have a sequence **-w-iy-V*, if the root is connected with ἀπολαύω ‘enjoy’, but this is far from certain (Peters 1980:305 reconstructs **loH₂w-iH-o*);

Ion. στοιή, Att. στοῖᾱ/στοῖᾶ, Dor. στῶῖᾱ (Cnossos, Mytilene) ‘colonnade, portico, storage room’ < **stōwiyā*, from the root **steH₂-* (Peters 1980:305 reconstructs **stoH₂w-iH-eH₂*);

Hom. θωή, θωῖή (Archil., Ion. inscr., Call.) ‘penalty’; cf. Att.-Ion. ἄ-θῶος ‘unpunished, innocent’ < **d^hoH₁w-iH-eH₂* (see Peters 1980:305);

Att.-Ion. ζῶϊον, ζῶϊον ‘living’ (Semon.) may be **-iye/o-* derivatives from ζῶος < **gyeH₃-wo-* (compare the Myc. personal names *zo-wo* and *zo-wi-jo*);

οἶη ‘village’ (Chios), but also the Attic deme name Ὀα, also Οἶα, Ὀη, Οῖη, and Ὀα. Possibly this is to be compared with the name of a Spartan tribe ὠβά. The distribution of forms is complex and confusing. The matter might become clearer once the treatment of **Vw(i)yV* sequences in various Greek dialects has been properly elucidated.⁸⁹

⁸⁹ A somewhat different sequence seems to be involved in Att. παρειά ‘cheeks’ (trag., Pl., X.), Hom. παρήϊον; cf. Myc. *pa-ra-wa-jo* ‘bridle?’ (du.), Aeol. παραῦαι (pl.) (Theoc., Hdn.) < **par-aws-iye/o-*, a compound of παρά and the inherited form of ‘ear’ with *a-* rather than *o-* vocalism (see esp. Peters 1980:295–304).

Although it shows a long diphthong, there is no evidence for **w* in Att. ὑπερῶϊον, Ion. ὑπερώϊον ‘upper story’. We may compare ὑπέρ but the formation is unclear; a derivation from an adverb **huperō* seems possible. Similarly, we find a long diphthong in Att. πεῶος, Ion. πρῶιος, but there is no evidence

It is clear that the following vowel is the main factor in the shortening of Attic diphthongs (in forms with following **ā* Attic shortens the diphthong, while in forms with following **ō* it does not; see Adrados 1950). But there is still a need for an integrated account of the behaviour of **-wy-* and **-wiy-* sequences in Greek, for many questions about the chronology and precise conditions under which various outcomes emerged still remain to be fully understood.

In general terms, insofar as we find **i* preserved in hiatus, such examples may count as evidence for original **i*, but insofar as we fail to find hiatus or characteristic patterns of shortening and simplification in Attic, in spite of favourable conditions, this would not seem sufficient to rule out an original sequence **-wiy-* in any particular example.

Where we find evidence of a shortened diphthong across dialects and not only in Attic, where the morphological facts point towards a sequence of a long vowel followed by **w* and then **i*/**y*, then this might be taken as evidence for the operation of Osthoff's Law, and hence for a sequence **-V̄wy-*, e.g. El. βασιλείω < **g^uasilēw-ye/o-* etc. However, as we have seen, there are doubts about whether **-wy-* sequences really triggered Osthoff's Law, and it has been argued that short vowels in such forms could be analogical in nature (see §3.5.3.3). If we entertain the idea of Osthoff's Law in such sequences, then examples like βασιλείω would constitute potential counterexamples to any form of Sievers' Law in Greek, and we will have to consider the antiquity and formation of evidence of this kind in order to assess its impact (see §7.1.5.2).

If we do not believe in the operation of Osthoff's Law in **-V̄wy-* sequences, then it is open to us to consider the possibility that the word for 'egg' might have contained a **-wy-* sequence. We find a long diphthong in both Attic and Ionic ᾠόν, but we cannot realistically deduce that a form **ōwiyon* is to be ruled out from the failure of Attic diphthong shortening; a **-wiy-* sequence can sometimes yield identical unshortened results in Attic and Ionic: cf. Att.-Ion. ζῶον beside ζῳόν (see p. 121).

Overall, the treatment of **-wy-* and **-wiy-* sequences in Greek presents many problems of interpretation and many potential ambiguities. It is beyond the scope of what can be achieved here to sufficiently elucidate and separate all the issues involved, and it seems prudent not to use any evidence involving **-CwyV-* and **-CwiyV-* as testimony in favour of Sievers' Law. However, where potential counterexamples to Sievers' Law arise among such evidence, they will be noted and discussed from a morphological and historical point of view.

3.7.4. The Development of **-Hy-* Sequences

Lindeman (1997:111–13) claims that an intervocalic sequence of a laryngeal followed by **y* sometimes resulted in a geminate **-yy-* at a very early stage of Indo-European, prior to the origin of quantitative ablaut alternations. In this way he explains unusual optatives like Skt *dheyām*, Gk *θειήην* as arising from **d^heyyēm*, ultimately going back to a form with an intervocalic sequence **-H₁y-* and two

that the hiatus in the base form *πρωί* goes back to a **w*. The opposition in Homer between *Τροίη* and *Τρώϊος* might be reminiscent of these patterns, but there is no evidence for an original **w* in this word.

full-grade vowels $*d^heH_1\text{-}yeH_1\text{-}m$. This explanation seems rather difficult to accept, since it requires the additional assumption that the geminate $*\text{-}yy\text{-}$ prevented the development of a zero-grade form of the unaccented root at a later stage of Indo-European, and the reasons for this are unclear. As we have seen, there are possibilities for analogical explanations of forms such as Skt *dheyām* and Gk $\theta\epsilon\acute{\iota}\rho\eta\nu$, Skt *stheyām* and Gk $\sigma\tau\acute{\alpha}\rho\eta\nu$ (see §3.3.4).

Lindeman also supposes that the $-\alpha\epsilon/o\text{-}$ suffix might arise from forms with a root/stem terminating in $*\text{-}eH_2\text{-}$ followed by the $*\text{-}ye/o\text{-}$ suffix. This seems possible if we already accept the sound change, but it is far from being a piece of compelling evidence in support of it.

Other etymologies suggest that an intervocalic $*\text{-}Hy\text{-}$ sequence was lost without a reflex in Greek, e.g. $\epsilon\acute{\alpha}\omega$ 'permit' < $*H_1weH_2\text{-}ye/o\text{-}$ (cf. Ved. *vāyati*, YAv. *frā-uuaieiiti*, etc.; see LIV² 254). If one wanted to maintain that $*\text{-}yy\text{-}$ was the regular outcome in Indo-European, then one might counter such evidence on two grounds. Firstly, from the point of view of understanding the Greek reflexes of such sequences, we face a problem because in this particular instance, and in other similar examples, the evidence is ambiguous in terms of the root vocalism and the suffixation, so an intervocalic sequence $*\text{-}Hy\text{-}$ might not be supported here by the Greek evidence. Secondly, such a development would not necessarily be incompatible with a geminate $*\text{-}yy\text{-}$ outcome in very early Indo-European, since it would be plausible that new $*\text{-}Hy\text{-}$ sequences could have arisen through regular morphotactic processes later in the history of Indo-European and in the early history of daughter languages while laryngeals still survived in the phoneme inventory.

However, the problem with the latter line of argument is that such a suggestion effectively undermines our ability to adduce any counterexample which might be deemed decisive, even in principle, and from this point of view it rather suggests that this putative sound change lies beyond what can be reconstructed by scientific methods.

In general, the evidence for this change is rather limited. We will note examples where a $*\text{-}Hy\text{-}$ sequence has been posited, in the context of the discussion of individual morphological categories.

3.8. FURTHER CHRONOLOGICAL FACTORS: CHANGES IN THE ENVIRONMENT

We now move beyond our discussion of the reflexes of $*i$ and $*y$, the chronology of their developments, and the limits on our ability to deduce the syllabicity of semivowels, and we consider changes that would have taken place in the environment surrounding those semivowels in the history of Greek.

Many phonological points of detail will arise as individual examples are discussed throughout this book, but a few general observations perhaps deserve to be brought up straight away, since they have an obvious bearing on the question of the chronology of the potential operation of Sievers' Law. We will focus here on changes brought about by the loss of laryngeals in Greek and the developments affecting syllabic liquids.

3.8.1. Laryngeal Developments

It is clear that the Indo-European laryngeals were lost during the history of Greek. One effect of these losses was to alter the environment surrounding **i* and **y*. We have already discussed, at some length, the newly created prevocalic instances of **i* produced by the loss of intervocalic laryngeals. We should now turn our attention to the effect of laryngeal loss in the environment preceding **i*/**y*. The historical consequences for any inherited rules governing semivowel syllabification depend, in part, on our view of how these rules functioned in the first place and, in part, on the phonological reflexes of particular laryngeal developments.

We saw that the outcome of an intervocalic **-Hy-* sequence is disputed. If one supposed the regular outcome to be reflected by examples like ἐάω ‘permit’ < **ewā-ye/o-* < **H₁weH₂-ye/o-*, then the net effect of this laryngeal loss would have been to recategorize this instance of **y* from ‘post-consonantal’ to ‘intervocalic’ in the history of Greek. Regardless of the validity of Sievers’ Law, we would expect early instances of intervocalic semivowels to be or become non-syllabic, regardless of the length of the preceding vowel, and so this change effectively removes such examples from the scope of rules governing syllabicity alternation. On the other hand, if the outcome of **-Hy-* was **-yy-*, then the post-consonantal status of the semivowel would be unaffected and the weight of the preceding sequence would also be unchanged.

Laryngeals in original consonant clusters raise a number of relevant issues. Where a laryngeal was in the rime of a syllable preceding a post-consonantal prevocalic semivowel, it would often have been lost with compensatory lengthening, i.e. **-VH_xC(i)yV* > **-V̄_xC(i)yV*, or **(C)RH_xC(i)yV-* > **(C)R̄V_xC(i)yV-*. In such circumstances the consequences for any rules of syllabicity alternation depend on one’s view of the original rules. If one follows Schindler’s theory that obstruent clusters did not count as heavy sequences for Sievers’ Law, then this Greek development would have produced new heavy sequences, and the way in which these behaved in Greek would simply be an empirical matter; we will review the evidence in the course of this enquiry. On the other hand, if one took the view that obstruent clusters constituted a heavy sequence for Sievers’ Law, then the Greek loss of such laryngeals with compensatory lengthening would not produce a significant structural change in the environment.

Greek shows another development whereby a **(C)RH_xC-* sequence yielded **(C)R̄V_xC-*. Before a semivowel this development would have had the effect of producing a light sequence and increasing the number of syllables. Once again we can only judge the extent to which this would have changed matters in the light of our assessment of the original situation. Only if **-HC-* clusters constituted heavy sequences for Sievers’ Law would this development have produced a substantial change. On a slightly different note, if we think that the number of syllables in the stem had an effect on semivowel syllabicity (as in Germanic), then this too might have produced disruptive effects. This is another aspect of the question to bear in mind in our analysis of the Greek data.

Greek vocalized word-initial laryngeals before consonants, e.g. ἐλάσσων ‘weaker’ ← **H₁lng^{wh}-yos-*. If a sequence of syllables once effectively counted as a heavy sequence (as in Germanic), then this new extra syllable in Greek might have disturbed the inherited situation. We will bear in mind the status of inherited and newly created polysyllabic stems when we look at the Greek data in detail.

There is a good deal of evidence for Rix's Law, the development of word-initial $*\#H_1RC-$ > $\#eRC-$, $*\#H_2RC-$ > $\#aRC-$, and $*\#H_3RC-$ > $\#oRC-$ (see Rix 1970:79ff. and Mayrhofer 1986:129–31). It seems pretty certain, in this case, that a sequence that would have been light from the point of view of Sievers' Law in Indo-European would have become heavy in the history of Greek. There are indications that Sievers' Law did not apply in Greek at the time when these new heavy sequences developed. We find the Elean superlative form ἄσιστα 'nearest', which may contain a resegmented stem ἄσ- from the expected comparative $*āson$ < $*ank^h-yos-$ < $*H_2mg^h-yos-$ (cf. ἄγχι, Ved. *aṃhú-*). For detailed discussion of this form and of the status of the attested comparative ἄσσον 'near', see §4.8.2.2.

The outcome and status of $*-CH-$ clusters before $*i/*y$ require a certain amount of discussion. It is unclear how we would expect an Indo-European word-initial $*CH(i)yV-$ sequence to have been realized. If one believes that word-initial sequences once showed semivowel syllabicity alternation, and that laryngeals were always obstruents, and that an obstruent cluster counted as a heavy sequence when it sat in a syllable onset, then one might expect this to be realized as $*CHiyV-$. Of course, all of these points are open to question. There are no examples in Greek showing reflexes of such a $*CHiyV-$ outcome. In fact, $*CHyV-$ sequences seem to show a 'vocalized' laryngeal (however that was originally implemented phonetically), e.g. δέω 'bind' < $*de-ye/o-$ < $*dH_1-ye/o-$ (cf. full-grade δῆμα, Ved. *dāman-* 'band', zero-grade *di-ta-* 'bound'). This treatment of the laryngeal results in newly intervocalic semivowels, and we would not expect these to appear as anything other than non-syllabic $*y$ in the history of Greek, however they might have been realized in Indo-European.

In a non-initial syllable, however, the treatment of a $*-CHyV-$ sequence may have been rather different. Pinault (1982) adduces a range of Indo-European evidence from Vedic, Greek, and Lithuanian suggesting that in this configuration a laryngeal was lost without trace within Indo-European, prior to the operation of Sievers' Law. Among other evidence Pinault (1982:267–8) notes that the Vedic comparatives *táv-yas-* 'stronger' < $*tewH-yes-$ and *pán-yas-* 'more wonderful' (from the *seṭ* root *pan^l-*) represent archaisms, later replaced by *táv-iyas-* and *pán-iyas-* respectively. These examples show no laryngeal-reflex. Similarly Ved. *kravyá-* 'flesh' is a $*-ye/o-$ derivative based on a laryngeal final root $*krewH_2-ye/o-$, without any trace of the laryngeal.⁹⁰ Similarly, the Lithuanian cognate of this form *kraūjas* shows the same accent as the *aniṭ naūjas* < $*new-ye/o-$, just as if there were no laryngeal in either form. The Lithuanian verb *ariù*, 3rd sg. *āria* 'plough' (< $*ar-ye/o-$) shows circumflex rather than the acute accentuation which would be expected given the *seṭ* character of the Indo-European root $*H_2erH_3-$; the evidence of OIr. *-air* also points towards the loss of a laryngeal.

We need to give serious consideration to the potential Greek evidence for such a change of $*-CHyV-$ > $*-CyV-$ in a non-initial syllable, since there are contradictory indications. On the one hand, there are verbs such as εἶρω 'say, tell' < $*wer-ye/o-$, apparently from IE $*werH_1-ye/o-$ showing the loss of a laryngeal; cf. ἄρρητος 'that which cannot be said' < $*n-wr^hH_1-to-$, fut. ἐρέω < $*were-se/o-$ < $*werH_1-se/o-$, Russ. *vru* (*vrat'*), Hitt. *weriye/a-*, etc. On the other hand, there are examples of laryngeals in such contexts showing a vowel reflex, e.g. Gk. ἄρω < $*H_2erH_3-ye/o-$

⁹⁰ We can leave aside the possibility that *kravyá-* arises from $*kravi-ya-$ (< $*krewH_2-ye/o-$) by the converse of Sievers' Law, since there is no evidence for a converse of Sievers' Law in Vedic (see §2.3.3).

(Latin *arō*, *-āre* also shows such a vocalic laryngeal reflex). Similarly, we find γελᾶω apparently from **ġelH₂-ye/o-*; cf. Arm. *cicalim* (see *LIV*² 162). It seems perfectly plausible that the vowel stem in these forms could have been analogically reintroduced either from other aspect stems or from derived nominals (see §6.8.1.5).

However, it is not always straightforward to use the Greek evidence. Pinault (1982:271–2) sees **aossos* (the noun implied by the denominative ἄοσσέω ‘help, support’) as a reflection of **sm̥-sok^wy-e/o-* < **sm̥-sok^wHy-e/o-*, assuming that the aspirate in the Vedic stem *sakhi-* points to a form with a laryngeal **sok^wH-i-*. One interpretation of this evidence is that Greek reflects the very early loss of this laryngeal, but, as we have seen, this is not the only interpretation, and the use we can make of the example is limited (see §3.5.3.2).

Similarly difficult is the evidence of the comparative μέζων ← **meg-yos-*, perhaps from **meġH₂-yos-*; cf. μέγα, Ved. *māhi*, Hitt. *mekk-* ‘much, many’, Arm. *mec* ‘great’, etc. < **meġH₂*. Alternatively, **meg-yos-* might indicate that the **H₂* in **meġH₂* was suffixal.

There has not been a comprehensive study of the evidence for Pinault’s rule in Greek. This will not be an explicit aim of this work; nevertheless, we must bear in mind the possibility of Pinault’s rule wherever we find the relevant phonological configuration, since the probable effect of this change was to alter the weight of sequences preceding **y*, and this phase of development clearly needs to be integrated into the overall picture of the history of semivowel syllabicity alternation.

3.8.2. The Development of Syllabic Liquids

It is clear that the replacement of syllabic liquids in Greek produced changes in the weight of certain sequences. Sequences of the shape **Cr̥CyV* or **Cl̥CyV* would have been light from the point of view of Sievers’ Law in the first instance, but at a later stage this could yield a sequence equivalent to **CarCyV*/**CorCyV* or **CalCyV*/**ColCyV* in certain dialects and under certain circumstances.

The example of Myc. <*wo-ze*> ‘works’ is illustrative. If we assume that the Mycenaean sign <*ze*> indicates a product of palatalization (rather than being a covert way of spelling a sequence **worgiei*), then perhaps we should suppose a form such as [*worzei*] < **wr̥ġ-ye/o-*. The [*or*] reflex of syllabic **r̥* is characteristic of Mycenaean, Aeolic, and Arcado-Cypriot.⁹¹ If the development of syllabic **r̥* to [*or*] occurred prior to palatalization and the loss of **y*, then perhaps we should suppose an intermediate form **worg-ye/o-*. This form would obviously violate Sievers’ Law, since we would have expected **worg-iye/o-* after a heavy sequence, if Sievers’ Law were an ongoing constraint in Greek.⁹²

Similarly, Cretan κάρτ(τ)ων and Dor. κάρρων are primary comparatives ← **krt̥-yos-*, based on the root **kret-/krt̥-*; cf. Ion. κρέσσων ‘stronger’ ← **kret-yos-*, the *s*-stem noun κρέτος (Aeol.), κράτος ‘strength, power’, κάρτος (ep., Dor.), and

⁹¹ See Lejeune (1972:197–8). On the other hand, Heubeck (1972) argued that Mycenaean preserved syllabic **r̥* and that various attempts were made to represent it with *a* or *o* spellings. If this were the case, then Mycenaean <*wo-ze*> would still have a light sequence in the root.

⁹² Compare the development of *waurkeip* ‘he works’ in Gothic; see §2.2.5.1.

outside Greek cf. Ved. *krátuḥ*, Av. *xratu-* ‘magical power, will’, etc. It seems clear that $\chi\alpha\rho\tau(\tau)\omega\upsilon\upsilon$ and $\chi\acute{\alpha}\rho\rho\omega\upsilon\upsilon$ imply an intermediate stage **kart-yōn* which would violate the conditions of Sievers’ Law, if it had applied at the relevant stage.

If, after reviewing the evidence, we come to the view that Sievers’ Law applied at an early stage of Greek, then we would have to assume that syllabic **r* survived as such in Greek until after the breakdown of Sievers’ Law. So, the relative chronology for the replacement of syllabic liquids is obviously relevant in our exploration of the manner in which Sievers’ Law might have operated and ceased to operate in Greek. It turns out that offering a clear-cut relative chronology is rather difficult, and it may well be that the replacement of syllabic liquids was not a single process at a particular point in time. Nevertheless, the attempt is instructive. Mycenaean offers a particularly interesting insight into the way in which these developments may have occurred.

In Mycenaean we find various different orthographic outcomes in forms which once contained a syllabic **r*. We find two different vocalisms: forms spelled with *To/To-ro* such as *to-pe-za* (< **(k^w)tr-*, cf. Att. $\tau\rho\acute{\alpha}\pi\epsilon\zeta\alpha$) and *qe-to-ro-po-pi* (< **k^wetr-*, cf. Att. $\tau\epsilon\tau\rho\alpha-$), and forms spelled with *Ta/Ta-ra* such as *A-RE-PA* (< **aleyph^hr-*, cf. $\acute{\alpha}\lambda\epsilon\iota\varphi\alpha\rho$ ‘unguent’), *pa-we-a₂* ‘clothes’ (< **b^hrwes-a*).⁹³ We also find discrepancies in syllabification: if the spelling of *ma-to-pu-ro* (PY Mn 1412.4) (< **mātr-*) represents a sequence of an *o*-vowel plus liquid (i.e. *mator-*), then Mycenaean disagrees with the syllabification found in first-millennium equivalents ($\mu\acute{\alpha}\tau\rho\omicron/-\mu\acute{\alpha}\tau\rho\alpha-$). Furthermore, Mycenaean spelling of one and the same word can be inconsistent in this last regard: we find the place name *ma-to-pu-ro* with an alternative spelling *ma-to-ro-pu-ro*. Such facts as these led to Heubeck’s (1972) suggestion that Mycenaean preserved syllabic [*r*] and used various different ways of denoting it. Since Sievers’ Law was certainly not operative in Mycenaean Greek, such a chronology would not be inconsistent with behaviour of the new heavy sequences created from syllabic liquids.

However, Heubeck’s theory has not found wide acceptance. García Ramón (1985) regards the argument for Mycenaean [*r*] from discrepancies in syllabification as difficult to confirm or disprove; he leaves open the possibility that Heubeck might be correct in the case of certain Mycenaean words with *or/ro*. However, in the matter of *a-* vs *o*-vocalism the situation is perhaps more amenable to analysis. He argues that the elimination of syllabic **r* was not a single and unified phonetic process, but took place over a considerable period and involved analogical as well as phonological processes.

There is a notable absence of double spellings of one and the same word in Mycenaean orthography, and one and the same scribe freely uses words with the *o*-vocalism and words with the *a*-vocalism (García Ramón 1985:204 n. 39, 205). These variant spellings do not fit into the pattern of *mycénien normal* vs *mycénien spécial*. These observations suggest, on the one hand, that this *a*-vocalism is a genuine linguistic feature and not a purely orthographical fluctuation and, on the other hand, that it is not a reflection of dialectal variation. The variety of results arises, in part, as a consequence of the protracted period over which the syllabic liquids were replaced.

⁹³ See García Ramón (1985) for further discussion and examples. See also Morpurgo Davies (1968) for further data and bibliography.

García Ramón (1985) argues that there were many instances in which syllabic $*r$ yielded $-ar/-ra-$ in all dialects, including Mycenaean. These he ascribes to an early Common Greek stage. For example, the anaptyctic vowel which developed in original $*CRyV$ sequences may belong to a very early period, given that such a sequence yields $*CaRyV$ without any hint of dialectal disparities in the vocalism or in the order of the vowel-resonant sequence, e.g. $\chiαίρω$ in all dialects $< *g^hr-ye/o-$.⁹⁴ Furthermore, it is possible, though not provable, that this development is parallel to the one by which $*CNy-$ sequences developed to $*CaNy-$. We know that in the case of the nasals this development must have taken place prior to the first compensatory lengthening; cf. the analogical aorist $\xiμηνα < *e-man-s-a$ (rather than $*e-mn-s-a$), which must have a stem generalized from the $*-ye/o-$ -present $*man-ye/o- < *mn-ye/o-$.

Some early (pre-Mycenaean) changes may be essentially analogical in nature. For example, the dative plural of the word for 'daughter' $tu-ka-ta-ši$ (cf. $tu-ka-te$) may represent $t^hugatarsi$ with an analogical vocalism based on the vowel-resonant order found in the full-grade forms with $-ter-$ and lengthened grade $-tēr$. According to García Ramón's account, the truly phonetic and regular sound change, eliminating the last few examples of syllabic liquids, yielded dialectally diverse results, e.g. $-or-$ or $-ro-$ in Mycenaean.

Given that analogy might have played a role in the replacement of syllabic liquids, questions of chronology are complicated and made rather less certain. It is difficult to rely on many examples as being representative of the phonetically regular outcome from the point of view of both outcome and chronology.

The examples of $\thetaαρσύς$ and $\thetaρασύς$ 'bold' are illustrative of the difficulties. The fact that we find $\thetaρασύς$ rather than $*t^hraus$ might be taken to imply that syllabic $*r$ did not suffice to trigger the loss of what would otherwise appear to have been an intervocalic $*s$, and furthermore that $*r$ survived as such until after the loss of intervocalic $*s$.⁹⁵ On the other hand, it might be possible to attribute the survival or restoration of $*s$ here to the s -stem $\thetaάρσος$, which itself is likely to be a replacement of the full-grade formation $\thetaέρσος$ (Aeol.) where the $*s$ is not intervocalic and so would have been preserved.⁹⁶ If this is how it happened, then the influence

⁹⁴ On the chronology of the treatment of syllabic liquids generally and of instances before vowels and semivowels in particular, see García Ramón (1984:249ff.).

⁹⁵ The development of $\iota\omicron-\chiέαιρα$ 'shooter of arrows' $< *g^hesr-ya$ might seem to be instructive on this point, but the environment is not exactly the same, since in $\iota\omicron-\chiέαιρα$ the syllabic $*r$ follows the $*s$ rather than preceding it. For extensive discussion of this example, see Peters (1980:223–8).

⁹⁶ We might expect $\thetaέρσος$ to show the effects of the first compensatory lengthening, especially if we follow Kiparsky's (1967) influential and useful formulation whereby the rule affected the whole class of resonants. However, Kiparsky was aware (1967:620 n. 4) that its applicability to sequences involving liquids is a complicated issue. There are good examples of ancient monomorphemic $*-Ls$ -sequences, where the $*s$ was lost with concomitant lengthening (or gemination in Aeolic), e.g. $\omicron\upsilon\rho\acute{\epsilon}\omega < *wors\acute{e}y\omicron$ 'urinate' (cf. Ved. $var\acute{s}ayati$ 'make rain') and $\kappa\omicron\upsilon\rho\acute{\alpha}$ 'cropping of hair' $< *kors\acute{a}$ (cf. Hitt. $kar\acute{s}$ - etc.). However, there are also equally ancient-looking monomorphemic sequences where the $*s$ was preserved, e.g. Hom. $\acute{\epsilon}\acute{\epsilon}\rho\sigma\eta < *H_1wers-$ (cf. Skt $var\acute{s}a-$ 'rain') and $\acute{\alpha}\rho\sigma\eta\nu$ 'male', Cret. $\acute{\epsilon}\rho\sigma\eta\nu$, Att. $\acute{\alpha}\rho\sigma\eta\nu < *w(e)rs\acute{e}n$ (cf. Skt $(v)r\acute{s}a-$, Lith. $ver\acute{s}is$). An analogical explanation for this double treatment seems out of the question. See Wackernagel (1888:127ff.), who posited a sound change conditioned by the position of the accent, supported and developed by Miller (1976). According to this more restricted rule $\thetaέρσος$ would not have lost its $*s$, since the accent did not fall on the syllable following the $*-Ls$ -sequence.

must have worked in both directions, since the *a*-vocalism in the *s*-stem formation can only date to the period after the elimination of syllabic *r*. It is difficult to know at what stage this influence was felt. We might suppose that **s* was retained because the transparent relationship **t^hersos*:**t^hrsus* continued to obtain, or alternatively that mutual remodelling took place to restore the partially obscured relationship **t^hersos*:**t^hra(h)us* > *ῥαρος*:*ῥασύς* (and *ῥασύς* in some dialects). These analogical possibilities are sufficient to throw doubt on our ability to know whether **r* survived in this environment until after the loss of intervocalic **s*, or whether the development into **-ra-* in *ῥασύς* had already occurred at that stage.

We may have a similar problem with *ῥασύς*. Given that this originally had syllabic **r*, we could explain the survival of otherwise intervocalic **s* by assuming either that syllabic **r* did not suffice to trigger its loss, or else that the chronology was such that the development **r* > **-ar-* occurred after the initial stages of the first compensatory lengthening,⁹⁷ but before the weakening of **s* between vowels. Alternatively, we could assume that *ῥασύς* was analogically restored after the model of *s*-stem *ῥαρος* (< *ῥέρος*). In such a case, the light which can be thrown on the relative chronology is correspondingly diminished.

So it seems that elimination of some instances of the syllabic liquids could have begun at a very early stage in Greek. However, dating the development between consonants is made difficult by the ongoing possibility of analogical interference between zero-grade and full-grade forms. If García Ramón's explanation of the variable vocalism of the outcome in Mycenaean is correct, then the forms with *o*-vocalism, such as *wo-ze*, are the ones where syllabic **r* survived longest. It is not inconsistent with anything else we know to allow that in many cases syllabic **r* survived until a comparatively late stage, in which case an interaction with the conditions of Sievers' Law in such examples would be ruled out. But the matter is not certain and we must bear alternative possibilities in mind.

3.9. SYLLABLE STRUCTURE AND WORD-INITIAL ALTERNATION

It seems clear that the conditions under which Sievers' Law operated, in the languages that show it, were determined not only by the segmental phonology, but more importantly by constraints on syllable structure. When considering changes in the environment which might have affected the potential operation of Sievers' Law in Greek, it is, therefore, pertinent to look at changes in syllable structure as well.

Greek underwent a number of such changes. Changes in the composition of permissible rimes and onsets are implicit, for example, in the operation of Osthoff's Law, the phases of compensatory lengthening, the treatment of long diphthongs, and the change in status of *muta cum liquida* sequences. However,

⁹⁷ Both under the most general analysis of the first compensatory lengthening, and under Wackernagel (1888) and Miller's (1976) more restricted version (see n. 96), we might have expected the **-Ls-* sequence in *ῥασύς* to undergo loss of **s* and compensatory lengthening or gemination, if the appropriate sequence had been in place at the appropriate time.

many such developments, though prehistoric, were nevertheless probably too late for us to expect them to interact with Sievers' Law as a principle of syllable structure. At the relevant stage any potential trace of Sievers' Law could only have been a category-limited morphophonemic distributional rule.

Therefore, we will focus here on one aspect of syllable structure for which we have evidence which in many cases goes back to Indo-European itself, and raises issues that feeds directly into many theories about the nature of Sievers' Law. We will consider the range of permissible word-initial syllable onsets, as exemplified by the relation between word-initial **C(C)yV-* and **C(C)iyV-* sequences, both those inherited from Indo-European and those which developed at an early stage in the history of Greek.

There are a number of Greek words with a potential Indo-European etymology with a word-initial sequence **C(C)(i)yV-*. Clearly these forms have a bearing on the question of the potential application of Lindeman's Law in Greek. This, in turn, may be relevant for our view of any relationship between Sievers' Law and syllable structure.

3.9.1. Examples with Invariant **CyV-*

If the preceding environment ever affected the realization of word-initial **C(i)yV-* sequences, no trace of such a situation survives in Greek. Indeed, syllabicity alternation of any kind between word-initial **CyV-/ *CiyV-* in cognate lexemes is vanishingly scarce, let alone in forms of one and the same lexeme. Even if we assume that such alternations once existed, we would have to argue that in almost all instances the non-syllabic semivowel was generalized. For example, we find no evidence, as we did in Ved. *d(i)yāuh*, for two forms of the word for the sky god **dyēws/ *diyēws*; we only find the reflex of **dyēws* (> Ζεός) and **dyēm* (> Ζῆν), never **diyews* and **diyēn*, in spite of the fact that they are monosyllables. Forms with a syllabic semivowel can always be attributed to instances of the zero-grade root **diw-* occurring before a vowel, e.g. gen. Διός (cf. Διφός). In a similar way, we find σεύω 'hurry, hasten' < **kyew-* (cf. Hom. ἐ-σύμενος, etc. and Ved. *cyá-vate* 'move, stir, undertake') and not **kiyeuō*.⁹⁸ Other examples include σέβομαι 'feel awe' < **tyeg^w-e/o-* (cf. σεμνός 'holy' from the same root, Skt *tyájati*) and σῆμα 'sign' < **d^hyeH₂-* (cf. Skt *dhyáti*);⁹⁹ we never find forms such as **tiebomai* < **tiyeg^w-e/o-* or **^hiēma* < **d^hiyeh₂-*.

An initial-consonant cluster **Cy-* is implicated in Att. δια-τάω 'sieve' and in the simplex form Ion. σῶσι, perhaps from **kyeh₂-ye/o-*; cf. Hitt. *kinanzi* 'sort' (see

⁹⁸ The diphthong in the root of the present σεύω itself ought to be an analogical restoration from other tense forms, since an intervocalic **w* should have dropped. There is no reason to follow Harðarson (1993a:190) in supposing a **-ye/o-* present, since this would not regularly yield σεύω either but **seïō* (see Beekes 2010:1321–2). The word-initial cluster is unproblematical though.

Possibly connected with this root are found Hom. ἐπίσωτρον 'metal hoop on a wheel rim' and ἐύσωτρος (Hes.), beside σῶτρον (Poll.), perhaps from a lengthened grade root **kyō(w)-*; cf. Skt *cyautná-*, Av. *šiaōθna-* 'deed' (see Beekes 2010:445 and EWAia I 552–3).

⁹⁹ Note, however, that Kloekhorst (2008:1019–20) derives σῆμα 'sign, mark' < **tyeh₂-mn-* and σῶμα 'corpse' < **tyoh₂-mn-*, and compares the Hittite verbal root *zāh-/zahh-* 'hit, beat'.

Kloekhorst 2008:477).¹⁰⁰ From the same root we find σήθω ‘sieve, sift’ (Hp., Dsc., etc.) < *k_{ye}H₂-d^h-; cf. σῆσις (Delph.) (see LIV² 360–1 and Beekes 2010:1322).¹⁰¹

Hackstein (1992:154–67) argues that πτάω ‘nudge, crash into, knock over’ (e.g. Pi.Fr.205) is to be compared with Lith. *pjáuti* ‘cut’ and Lat. *paviō* ‘pound, strike’, and goes back to *py(e)H₂-w-ye/o-; perhaps cf. Toch.B *pyakar* ‘they struck down’ (see LIV² 481–2). The Latin form would have to show a simplification of an initial *py- cluster or else lose *y by dissimilation from the *y in the suffix. The laryngeal would be responsible for the long vowel in the related form πτήσσω ‘frighten; cower with fright’. The initial cluster in πτάχα ‘hare’ (acc. sg.) could go back to the same origin, if the sense ‘frighten’ can be reconciled with the comparative evidence (see Beekes 2010:1246).

It is possible that ὑμήν ‘membrane, sinew’ (Hp., Arist., Thphr., etc.) originally contained a word-initial *sy- sequence < *syuH-mēn; cf. Ved. *syūman-* ‘band, bridle’ etc. However, there appears to be a variant of this root without the *y; cf. Lat. *suere*, *sūtum*, Skt *sūtra-*, Hitt. *šūil* ‘thread’, all apparently from the root *suH₁-. It is not clear whether ὑμήν is from *suH₁- or *syuH- (see further §6.3.2.3).

Although LIV² (361) suggests that σήπομαι ‘rot’ could go back to a form with an initial cluster, *K_{ye}H₂p-, external cognates are rather uncertain (see Chantraine 1999:999 and EWAia I 275). So we cannot be sure about the origin of the initial σ-.

An example which is not truly word-initial, but at least morpheme-initial, might be found in ἀρί-ζηλος ‘clear’, which is a variant of ἀρί-δηλος. Schulze (1892:244 n. 1) argued that this went back to a form containing a *dy- cluster. However, Beekes (2010:324 s.v. δῆλος) argues that the ζ- of ἀρί-ζηλος can be ascribed to ‘inverted writing’. It is certainly the case that we find some unexpected Homeric instances of δα- instead of ζα- (Aeolic for διά), e.g. δα-φαινός ‘very red’. We may also find ζα- for expected δα- in ζά-πεδον ‘ground’ (Xenoph.) for δά-πεδον (Od.), and ζακόρος ‘temple servant’ beside Myc. *da-ko-ro*, assuming that the forms with δ- have a first element *d_m-, the zero grade of *dem-/dom- ‘house’ (see Beekes 2010:295, 302–3, 495–6). The conditions for this variation are obscure, but Beekes’ solution has the merit of avoiding the necessity of positing a schwebeablauting root *d_{ye}H₂-/*d_{ey}H₂- lying behind ἀρί-ζηλος and cognate δῆλος (< *dealo- < *d_{ey}H₂-lo-).

Doubt still remains about the evidence for word-initial *Hy- clusters in Greek. Positing such clusters might be helpful in explaining the twofold outcome among Greek words which appear to have the reflexes of initial *y- in other languages. We find a word-initial aspirate in examples like ἥπαρ ‘liver’ < *yēk^w-r/n- (cf. Ved. *yákr̥-t*, Lat. *iecur*, etc.) and the relative pronoun ὅς < *yo- (cf. Ved. *yás*, Av. *yō*, Phryg. *ios*/ιος). On the other hand, we find examples with initial ζ-, such as ζυγόν ‘yoke’ < *yewg- (cf. Ved. *yugám*, Lat. *iugum*, etc.).¹⁰² The question is whether one group of examples goes back to forms with an initial *Hy- cluster, and if so, which

¹⁰⁰ This etymology only works if we do not assume the change of *-Hy- > *-yy- (see §3.7.4).

¹⁰¹ Possibly τηλία/σηλία ‘table, stage, sieve’ belongs here, but the morphology is not clear (see Beekes 2010:1478).

¹⁰² Following García Ramón (1999), we will assume that δίζημαι ‘seek’ is to be connected with Ved. *yātar-* and goes back to a root *yeH₂- ‘pursue, avenge’, rather than ultimately containing a word-initial cluster *dy-. Compare also ζήλος ‘zeal’ (Hes. etc.) and ζητέω ‘search’ (Hom.).

outcome represents the cluster and which the simplex onset. For our purposes it does not necessarily matter which group represents forms with an initial cluster, since it is certain that we do not find any examples exhibiting a variant with syllabic **i*, e.g. we do not find **iyugon* beside ζυγόν, or **iyēpar* beside ἥπαρ. Nor do we find forms for which we need to reconstruct an invariant initial sequence **HiyV-*. In consequence, there is no evidence for anything resembling Lindeman's or Edgerton's Law alternations among such examples.

The invariant nature of these forms might not be terribly surprising if we took the view that Lindeman (1965) was correct in deducing that monosyllabicity was a necessary condition for word-initial semivowel alternation; we would precisely expect to find invariant non-syllabic semivowels in all of these words, with the exception of Ζεύς and Ζῆν. However, this outcome would also be consistent with a situation in which the non-syllabic semivowel had been generalized, or where originally there was no word-initial alternation at all.

3.9.2. Evidence for **CCyV-*

The idea of Lindeman's or Edgerton's Law at any stage in Greek would be challenged by evidence for **CCyV-* sequences.

It is conceivable that Hsch. σερός· χθές, ἡλῆτοι 'yesterday' (El.) contains the reflex of a word-initial cluster involving **y*. However, the precise nature of that cluster is far from clear. We might reconstruct **g^hyes-*, if this word is etymologically equivalent with Ved. *hyás* 'yesterday', but we would have to assume Elean rhotacism and an added element -ός (see e.g. Chantraine 1999:996).

The reconstruction is not straightforward, however, because Latin *heri* and Alb. *dje* go back to a slightly different preform **g^hes(i)*. To further complicate matters, Greek has a more common form (ἐ)χθές (*h.Hom.* etc.), which appears to reflect a more complex initial cluster, such as **d^hg^hes*. We have other formations such as χθιζός 'of yesterday', with an *i*-vocalism, which also seems difficult to explain.

So, reconstructing a common ancestor for these forms is a challenge. It might be that σερός goes back to **g^hyes-*, which in turn represents the simplification of an initial cluster **d^hg^hyes-*. But it is very far from certain, and this makes it difficult to use this form in an enquiry about the behaviour of word-initial sequences containing **y*.

It has been proposed that σῶμα 'body' (Hom. etc.) has a connection with Ved. *styā-* 'become stiff' < **styeH-* (see LIV² 603), though as a verbal root this is only attested in Indic. On the other hand, σῶμα has also been connected with σωρός 'heap' (Hes. etc.), possibly from **twoH-mṇ*. However, if LIV² (639–40) and Beekes (2010:1439–40) are right to reconstruct a root **tewH₂-* 'swell, grow strong' (cf. Ved. *tavīti* 'be strong', *tavás-* 'strong'), then we would be forced to accept a schwebeablauting root under this analysis.¹⁰³ Kloekhorst (2008:1019–20) has proposed yet another etymology, connecting σῶμα with σῆμα 'sign, mark'

¹⁰³ According to Peters (1980:290 n. 243), σῶς/σάος 'safe' is also connected and this provides the motivation for reconstructing **H₂*. He derives σάος from **tawawos* < **tuH₂-ewo-s*, without resorting to schwebeablaut, but instead supposing an **-ewo-* suffix. This etymology would, furthermore, require the devocalization of post-consonantal prevocalic **uH₂* to **w*. Lubotsky (1988:123) on the other hand supposes an ablauting *u*-stem paradigm with a full-grade **tweH₂-u-*, which underwent thematization

< **tyeH₂-mn-* and **tyoH₂-mn-* respectively, comparing the Hittite verbal root *zāḫ-/zahḫ-* ‘hit, beat’. The case for a word-initial **CCyV-* sequence is not secure given the lack of certainty over the etymology.

A complex word-initial cluster may be involved in the verb ‘to spit’. *LIV*² (583–4) reconstructs a root **sptyewH-* in order to explain Gk πτῦω ‘spit, spit out’, Lat. *spuō*, Ved. *ṣṭivati*, Lith. *spiauju* (*spiauti*), Arm. *ṭowkʿ*, *ṭkanem* ‘to spit’, Alb. *pēshtyj*, Goth. *speiwan*, etc. It seems reasonably clear that this is an onomatopoeic word. The reconstruction of the anlaut of the root is rather problematical since the various cognates do not all agree. Beekes (2010:1252) reconstructs **tspi(e)uH-* from the same data. In any event, it would have been subject to the constant potential for reformation in all the languages in view of the obvious and persistent connection with the sound of spitting. This is a case where we cannot be confident of our reconstruction, and we cannot draw any conclusions from the evidence of πτῦω.

The evidence of roots with the shape **HC-*, *(*C*)*CH-*, and **CHC-* collocated with suffixes beginning with **y* would also belong here, but, as we shall see, there are phonological problems in interpreting their testimony, requiring separate discussion (see in detail §§6.8.1.1, 6.8.1.4, and 7.2.1).

3.9.3. Evidence for Syllabicity Alternation

There are only two examples of Greek roots with potential variant forms with **CyV-* and **CiyV-*. Homeric ζῶω ‘live’ < **g^wyeH₃-* exhibits the reflex of an initial cluster **g^wy-*, in contrast to the cognate root aorist form ἐβίων < *(*e-*)*g^wiyeH₃-m* (for the root cf. Lat. *vīvus*, Goth. *qius*, Skt *jīvāḥ*).¹⁰⁴ Usually the fact that this form exhibits variation while σέω, σέβομαι, σῆμα, etc. do not is taken as a point in favour of Lindeman’s Law, because we find syllabicity alternation in the onset of a word which, but for the syllabic augment, would otherwise be monosyllabic (see Lindeman 1965 and §2.7.2).

However, Klein (1988:270), following Francis (1970:77ff.), takes a different approach. Given that outside Iranian there is no evidence for a full-grade **g^wyeH₃-*, Klein finds it unlikely that ἐβίων is a root aorist, and so he reconstructs an intransitive stative formation **e-g^wiH₃-eH₁-m*. If this morphological analysis were correct, then Lindeman’s Law would not be involved.

Even if we do not follow the Klein–Francis analysis, the ζῶω/ἐβίων contrast is difficult to regard as strong evidence for original word-initial alternations, since it would be very easy for the syllabic **i* of ἐβίων to be spread by paradigm levelling from the expected 3rd plural form **ḡβιον* < *(*e-*)*g^wiH₃-ont*, though this form does not happen to be attested.

We may see behind βίω/βίη ‘force’ an original root noun (perhaps < **g^wiyeH₂*) from which there are a number of derivatives, e.g. βίαιος, βιάομαι, etc. A trace of this root with a non-syllabic semivowel might be found in Hsch. ζάει· βινεῖ

yielding σάος, and the zero-grade root **tuH₂-u-* being indirectly reflected in Hsch. τὰς· μέγας, πολὺς, which would have initial **t-*, but without the expected zero-grade vocalism.

¹⁰⁴ For present purposes it is fair to assume that at an early enough stage we can count ἐβίων as exhibiting the outcome of a word-initial sequence, the syllabic augment notwithstanding.

καὶ πνεῖ. Κύπριοι, where the verb in the first sense ‘has intercourse with’ could constitute a denominative from $*g^wyéH_2$ (see Beekes 2010:495).¹⁰⁵

A comparison has been suggested with the Vedic root noun $j(i)yā́$, traditionally translated as ‘force, power’; various Vedic verbal forms can be traced back to the same *set* root, e.g. *jināti* ‘overpower’, *jīta-*, etc. If this analysis is correct, then, regardless of the truth or otherwise of Lindeman’s Law, we would probably expect paradigmatic syllabicity alternations at a certain stage in Greek: i.e. $*g^wyā́ \sim *g^wi-ós < *g^wyéH_2 \sim$ gen. sg. $*g^wiH_2-ós$. Once the intervocalic laryngeal dropped, such alternations could well have been levelled in favour of the syllabic semivowel.

However, the Vedic comparison has been questioned. *EWAIa* (I 603–4) suggests that in place of the traditional translation ‘force, power’, $j(i)yā́$ should be understood as ‘robbery’ (*Beraubung*) and be compared with YAv. *-ziiā* ‘he who steals’ (*qui dérobe*). Under this analysis, the Indo-Iranian forms would have to go back to a word-initial palatal-velar rather than a labiovelar, which undermines the comparison $\beta i\tilde{\alpha}/\beta i\eta$. This conclusion is accepted by Beekes (2010:213), who assumes that an *aniṭ* root $*g^wey-/g^wi-$ lies behind $\beta i\tilde{\alpha}/\beta i\eta$; cf. Ved. *jáyati* ‘conquer’. If we were to reconstruct an $*-eH_2$ stem noun $*g^wi-eH_2 > \beta i\tilde{\alpha}/\beta i\eta$, then we would have an example of an ancient $*CiyV-$ sequence which could not have been produced from paradigmatic generalization from forms containing a sequence $*CiHV-$.

Nevertheless, this example cannot be relied on as a certain instance of an inherited $*CiyV-$ sequence. Even if there is not a word equation between $\beta i\tilde{\alpha}/\beta i\eta$ and a Vedic root noun, this does not take away from the fact that we have comparative evidence for a Vedic *set* root *gyā-* meaning ‘overpower’. In principle $\beta i\tilde{\alpha}/\beta i\eta$ could still go back to an ablauting root noun from this same *set* root, albeit without the evidential support of a word equation. The relationship between $\beta i\tilde{\alpha}$ and $\zeta á\epsilon i$ would not be a Lindeman’s Law relationship if the syllabic semivowel in $\beta i\tilde{\alpha}$ is analogical and arose within Greek.

3.9.4. Examples with $*C(C)iyV-$

Even if we cannot find clear unarguable evidence for any given root being attested both with syllabic and non-syllabic semivowels word-initially, we might at least find indirect support for the idea that Greek inherited a situation in which there was variability in the realization of word-initial clusters containing semivowels, if we could find clear examples of Greek $*C(C)iyV-$ sequences that could be shown to go back to IE $*C(C)iyV-$ sequences. However, we shall see that it is surprisingly hard to find convincing examples.¹⁰⁶

We have already seen a number of $*CiyV-$ forms which cannot contain an IE $*CiyV-$ sequence. Obvious examples include $\mu í\alpha < *sm-iH_2$ and $\acute{\rho} \acute{o} \tau \nu \iota \alpha$. The antiquity of gen. pl. $\tau \rho \iota \tilde{\omega} \nu$ is a little more difficult to assess, but the opportunity to build this analogically would have been available at any stage (see §3.5.1.1).

¹⁰⁵ In the second sense ‘breathe’ $\zeta á\epsilon i$ may be from a different origin, $*di-awē$; cf. $\tilde{\alpha} \tilde{\nu} \eta \mu \iota$ (see Frisk 1973:607).

¹⁰⁶ We will generally leave aside discussion of Greek $*CiV-$ sequences, since these never go back to configurations which are relevant to Lindeman’s or Edgerton’s Law, e.g. $\pi \acute{\iota} \omega \nu$ (m.), $\pi \acute{\iota} \epsilon \rho \alpha$ (f.) ‘fat, fertile, rich’ $< *piH-wōn$, f. $*piH-wer-iH_2$; cf. Ved. *pīvan-*, *pīvarī*.

We will not discuss examples where a Greek word-initial sequence $*Ci(y)V-$ goes back to the comparatively recent loss of an intervocalic $*s$ or $*w$, e.g. $\delta\acute{\iota}\alpha$ ‘through etc.’ if it is really from $*dis-a$ (cf. Lat. *dis*), or the hapax $\sigma\acute{\iota}\nu\omicron\tau\alpha$ (acc.) ‘shake, agitate’ (Anacr.), which may involve a zero-grade root $*twis-$ (cf. $\sigma\epsilon\acute{\iota}\omega < *tweis-$ beside Skt *tvéṣati*, *tvīṣ-*), or the gen. sg. $\Delta\acute{\iota}\omicron\varsigma < *diw-os$. Such $*Ci(y)V-$ sequences are clearly derived far too late in the history of Greek to interact with any potentially inherited syllabicity alternations. They would only have constituted $*Ci(y)V-$ sequences at a post-Mycenaean stage, by which time $*iH_2$ had already developed to $*-ya$, and post-consonantal prevocalic instances of $*y$ were in the process of disappearing as distinct segments through palatalization processes. These factors were not conducive to the survival of syllabicity alternations as living rules, let alone to the spread of such rules to new instances of $*Ci(y)V-$.

3.9.4.1. Examples from $*CiHV-$

In many instances we can attribute a word-initial $*CiyV-$ sequence in Greek to the effect of an original intervocalic laryngeal in a sequence $*CiHV-$. A syllabic semivowel in such situations is exactly what we expect to find, and naturally such examples give us no basis for supposing word-initial semivowel syllabicity alternations. We have already encountered $\beta\acute{\iota}\omicron\varsigma < *g^w iH_3os$ and $\pi\rho\acute{\iota}\alpha\tau\omicron$ (if analogical after $\epsilon\pi\rho\acute{\iota}\alpha\tau\omicron < *e-k^w riH_2-ento$). There are many other examples, such as:

$\kappa\acute{\iota}\omega$ ‘move, set in motion’ (Hom., A.) $< *k\hat{i}H_2-$; cf. $\kappa\acute{\iota}\tau\nu\omicron\mu\alpha\iota$ (LIV² 346 and Beekes 2010:707);

$\lambda\acute{\iota}\alpha\zeta\omicron\mu\alpha\iota$ ‘bend, collapse, sink’ (Hom.) $< *liH_2-$; cf. the nasal infix present $\lambda\acute{\iota}\nu\alpha\mu\alpha\iota < \acute{\epsilon}\chi > \tau\rho\acute{\epsilon}\pi\omicron\mu\alpha\iota$ (Hsch.), Skt *lināti* (gramm.), and OIr. *lenaid*, all based on $*leyH_2-/liH_2-$ (see LIV² 406);¹⁰⁷

$\beta\rho\acute{\iota}\alpha\rho\acute{\omicron\varsigma}$ ‘strong’ $< *g^w riH_2-ero-$; cf. $\beta\rho\acute{\iota}\vartheta\omega$ ‘be laden with, full of’, and perhaps Ved. *grī-ṣmá-* ‘midsummer’ (see Beekes 2010:239 and Chantraine 1999:196).

Similarly, $\beta\acute{\iota}\omicron\varsigma$ ‘bow, bow-string’ probably comes from $*g^w iH-e/o-$, a thematic extension based on a root noun $*g^w ieH-$; cf. Skt *j(i)yā*, Av. *jiiā-* ‘bow-string’, etc. (see Beekes 2010:215). On this analysis, the syllabic semivowel in $\beta\acute{\iota}\omicron\varsigma$ can be easily explained as originally inter-consonantal, i.e. $*g^w iH-$, and Lindeman’s Law does not enter into the question.

However, there are a number of problems in the evidence which need to be noted. The first problem concerns the identity of the initial stop. Lat. *filum* and Arm. *jil* can come from a root $*g^w iH-$, whereas MW *gieu* ‘sinews, tendons’ ought to come from a form with initial $*g^w-$, since according to Schrijver (1995:286) a form with an initial voiced aspirate $*g^w h-$ would yield $*gwieu$. The Balto-Slavonic evidence (e.g. Lith. *gýsla*) is, of course, ambiguous. A second problem concerns the reconstruction of a laryngeal. The Welsh evidence points to an initial cluster

¹⁰⁷ Beekes (2010:859) mentions two other possible sets of comparanda and the reconstructions which would follow, all rather uncertain. But ultimately the reconstructed roots all have a zero-grade root shape containing $*i$ followed by a root-final laryngeal; whatever the ultimate etymology of the root, $\lambda\acute{\iota}\alpha\zeta\omicron\mu\alpha\iota$ itself was probably built secondarily, perhaps from the aorist $\lambda\acute{\iota}\alpha\sigma\sigma\epsilon$ (a variant read by Aristarchus at Il.23.879) or $\lambda\acute{\iota}\alpha\sigma\theta\eta\gamma\alpha\iota$, which owes its initial $*Ci(y)V-$ sequence to an original intervocalic laryngeal.

with **y*, i.e. *gieu* < **g^wy-ew-es*, rather than **g^wi-ew-es* (< **g^wiH-ew-es*), which would have yielded **bieu*.¹⁰⁸

Given this conflict in the evidence, certainty is difficult. It is conceivable that the laryngeal might originally have been suffixal and that the Welsh form is built on a simpler root. In any case, from a Greek point of view, the example is unusable as a clear example of an inherited word-initial **CiyV*- sequence.

There are quite a few further cases where the effect of a laryngeal may be suspected, but problems of various sorts makes the matter uncertain, e.g.:

δίενται, δίεσθαι ‘hurry, pursue’ perhaps < **diH₁-entai*; cf. Latv. *deju* (*diēt*) ‘dance’, Ved. *dīyanti* ‘fly’, and OIr. *dían* ‘quick’ (see LIV² 107);¹⁰⁹

ἔεμαι ‘hasten forward etc.’ (**ḥémei* suggested by Homeric metrics) possibly from a root **wey(H)-*; cf. Ved. *véti*, *vyánti*, Lith. *výti* (1st sg. *vejù*) ‘pursue, hunt’.

However, this example cannot be used, because the initial vowel is long, and Harðarson (1993b:159ff.) reconstructs **wi-wiH₁-entoi* → ἔεμαι.¹¹⁰

It is not straightforward to reconstruct the word for ‘shadow’, which is reflected in σκιά ‘shade’ (Hom.), Toch.B *skiyo*, Alb. *hije* ‘shadow’, Ved. *chāyā* ‘shadow’, and Av. *a-saiia-* ‘one who casts no shadow’. Beekes (2010: 1350–1) supposes an original ablauting formation **skeH₂-iH₂*, **skH₂-yeH₂-s*,¹¹¹ with the full-grade root being generalized in Ved. *chāyā* ‘shadow’ and Av. *a-saiia-*,¹¹² and the zero-grade root being generalized in Greek, Tocharian, and Albanian. Under this analysis the consistent syllabic **i* in Greek is attributed to a stem form **skiH₂eH₂-* metathesized from the expected **skH₂-yeH₂-*. However, I know of no other evidence for such laryngeal metathesis before a vowel. On the other hand, it might be thinkable that a sequence *(C)CHiH- could have metathesized, i.e. nom. sg. **skH₂-iH₂* > **skiH₂H₂*, but I know of no precise parallels; it is conceivable that a sequence **skiH₂H₂* could have subsequently developed to σκιά. But this is simply a guess.

EWAia (I 559) supposes that the Greek form is due to a Lindeman’s Law variant gen. sg. **skH₁-iyeH₂-s* > σκιάς. However, it seems possible that a paradigm based on a fixed zero-grade root **skH₂-iH₂-*/**skH₂-yeH₂-* might yield σκιά one way or another, without the assumption of Lindeman’s Law. It seems possible that a nominative **skH₂-iH₂* would lose the prevocalic laryngeal, giving **skiH₂*. We do not have a parallel for the development of this sequence in Greek, but it would not be impossible for the expected outcome **skya* to have undergone an *i*-epenthesis, in a fashion similar to word-final **CRiH₂* sequences in examples like πότνια or μύα. In any event, it is difficult, to say the least, to use this evidence in support of the reconstruction of an inherited **CC(C)iyV*- sequence.

¹⁰⁸ I am very grateful to Dr Nicholas Zair for pointing this out to me (pers. comm.).

¹⁰⁹ Perhaps also cf. Hom. διερός ‘liquid, fluid’ < **diH₁-ero-* (see Beekes 2010:332–3). Beside δίενται we have διώω (Hom. etc.) ‘pursue’. But it is not clear what the relationship between these words is.

¹¹⁰ The connection, if any, with Corinthian *ἑώω* (cf. Hom. *ἰωκή* ‘rout, pursuit’) is unclear. On the unlikely view that ἰότης ‘will, decision’ < **wiotótēs* (cf. ἔεμαι ‘haste, desire’) see Beekes (2010:595–6). This etymology falls down because ἔεμαι has a long ē.

¹¹¹ The quality of the laryngeal in **skeH₂-* is suggested by the connection with σκηνή, Dor. *σκᾶνᾶ* ‘tent’, if, as seems probable, this is based on the full grade of the same root.

¹¹² Mayrhofer reconstructs a form **skeH₁-yeH₂-*; see EWAia I 559–60.

Leaving aside this last example, it generally seems possible to explain many examples of Greek word-initial **CiyV-* sequences as the result of the loss of an intervocalic laryngeal, either generally or in at least one place in the paradigm with subsequent levelling.

3.9.4.2. **C(C)iyV- Sequences in Ablauting Paradigms*

We have already seen that the syllabic semivowel in ἐβίων could be explained as a result of paradigmatic configurations which would have arisen through ablaut. A number of other examples are difficult to use in a discussion of Lindeman's Law alternations, for similar reasons.

A seemingly promising example of an original word-initial post-consonantal prevocalic **i* is found in χιών 'snow' (Hom. etc.), cf. Arm. *jiwn* 'snow', Lat. *hiems*, Av. *ziiā* < **ǵ^hiyōm*. Greek and Armenian agree in replacing the original *m*-stem paradigm with *n*-stem forms based on the nominative singular with the regular change of **-m* > **-n*. Also Greek has generalized the *o*-grade root. This importance of the nominative singular in shaping the Greek paradigm seems to speak in favour of the view that its syllabic post-consonantal prevocalic **i* is inherited. However, if Schindler's (1972) reconstruction of the paradigmatic ablaut of this word in Indo-European is correct, then originally there would have been an alternation between case forms with a post-consonantal prevocalic semivowel **ǵ^h(i)ye/om-* and zero-grade forms with **i*, e.g. gen. sg. **ǵ^him-os*. In such circumstances it is imaginable that syllabic **i* could have been generalized from zero-grade forms in the paradigm at an early stage.

On the face of it we seem to find an original word-initial **CCiyV-* sequence in examples like 3rd sg. aor. ἐφθιεν (if we ignore the augment), or 2nd sg. aor. subjunctive φθίῃς (where the long *ī* can be due to metrical lengthening). However, these forms cannot be used in arguments about Lindeman's or Edgerton's Law in any simple fashion. In the athematic paradigm the stem form φθι- was very prevalent, e.g. in ἐφθιτο, ἐφθισο, φθίμενος, etc. Whatever the inherited situation might have been, we would probably expect a uniform stem form to arise once any inherited rules of semivowel syllabicity had broken down. In these circumstances the fact that forms like ἐφθίατο or thematic ἐφθιεν and φθίῃς have syllabic *ι* rather than the reflexes of **y* can hardly count as strong evidence for the inherited situation.¹¹³

It is more difficult to assess the strength of the evidence provided by the Mycenaean 3rd pl. athematic root present *ki-ti-je-si* = [*ktiyensi*] (cf. ἐὐκτίμενος, κτίζω, κτίσσαι 'to found, build', etc.). If this is to be compared with Ved. *kṣéti*, *kṣiyánti*, OAv. *šaēiti* 'he lives', *šiiēinti* 'they are on somebody's side', then we ought to reconstruct a root **tkey-/tki-* (see EWAia I 427), and an original word-initial **CCiyV-* sequence. If the Greek paradigm matched that of Vedic and also exhibited a full-grade root in the singular, then it would be slightly more difficult to explain Myc. *ki-ti-je-si* as the product of levelling, and we might be more inclined to view this as an inheritance. However, we do not know how the rest of this paradigm might

¹¹³ If LIV² (150–2 n. 4, 7) is correct in assuming that the athematic root aorist originally had active inflection, then all of the forms in question may be secondary to one degree or another.

have appeared at a Mycenaean stage. We do know that the root shape **kti-* was generalized in εὐκτίμενος, κτίζω, κτίσσαι, etc.

3.9.4.3. Etymologically Problematical Examples

There are a great many examples of word-initial *C(C)iV-* sequences that lack any secure etymology and, as a result, the role they can play in establishing the behaviour of the earliest word-initial sequences involving semivowels is limited.

In forms like διᾱκόσιοι ‘two hundred’ or τριᾱκόσιοι ‘three hundred’, the origin of the word-initial sequence has yet to receive a convincing explanation. The last part of these compounds appears to be from **(d)k̑mt-iyo-*, with an analogical *o*-vowel (cf. -κοντα); see Beekes (2010:328–9), and Chantraine (1999:277). We might have expected δι- < **dwi-* and τρι- in the first part of the compound; cf. Ved. *dvi-*, Lat. *bi-*, Goth. *twis-*, Ved. *tri-*, Lat. *tri-*, etc. But we actually find διᾱ- and τριᾱ-. The former is sometimes thought to follow the model of the latter, but the origin of τριᾱ- is also unclear (see Chantraine 1999:1131).

We may find evidence for an old post-consonantal prevocalic **i* after a cluster in γλία ‘glue’ (Hsch., *EM*). The **i* seems to be part of the root; cf. γλίνη (*EM*), γλοιός ‘glutinous substance’ (Semon.), and for possible external comparison, see Beekes (2010:276–7). However, we do not know the length of the final *-α* in γλία; if it is short then we could be dealing with an inner Greek formation in **-ya* from the root **gli-* rather than something reflecting an original Lindeman’s Law word-initial outcome. If this is older and goes back to **gli-iH₂*, then it is not at all clear what we should expect the phonological development of such a sequence to be in Greek. It seems difficult to use this form as evidence for the early distribution of semivowel syllabicity.

It has been supposed that there is a connection between χλιδάω ‘warm, soften’ (Hp., S., etc.), χλιαρός etc., and OIr. *glé* ‘clear’, ON *gljá* ‘shine, gleam’, etc., which could go back to a root **g^hley-*. However, the semantic connection is far from close. Also, there is alternation between *ī* and *ĩ* in the Greek forms, which remains unexplained by this etymology. This evidence is best left aside.

The origin of the initial sequence in σιωπάω ‘be silent’ (Hom.), σιωπή ‘silence’ (Pi. etc.) is not clear. The potential connection with Goth. *sweiban* ‘stop, suspend’ might support an alternation **swiyōp-/swīp-* (or with a laryngeal **swiH-*). Alternatively, the prevocalic *i* in Greek might be due to a reduplicated form *swi-swōp-*. If the *i* results from reduplication, then this might conceivably explain the alternative form without *i*, δια-σώπάω (Pi.). But all this is terribly speculative. Beekes (2010:1338) prefers a Pre-Greek origin.

Many accounts suppose that πιέζω ‘squeeze, press’ ultimately had a root **pisd-*; cf. Ved. perf. *pipīḍé*, Skt *piḍāyati* ‘press’. However, a phonological development producing a Greek sequence *-ie-* from such origins would be unparalleled. There might have been an analogical replacement of the expected **pīze/o-* under the influence of *ēze/o-*. Since the **CiyV-* sequence would be secondary, it would not be particularly relevant for our purposes.

We might have an example of a morphologically motivated **Ci-yV-* sequence in τίω ‘honour, estimate, praise’. LIV² (377–8) reconstructs a root **k^wey-*, and supposes that there was a **ye/o-* present **k^wi-ye/o-*. There is variation between forms

with $*i$ and $*\bar{i}$ in this root in epic; cf. πολύτιτος (in a hexametric oracle in Hdt. 5.92). But this epic variation can be explained as metrical lengthening.

Under this analysis, $*k^w\text{-ye/o-}$ would not be an instance of Lindeman's or Edgerton's Law; all it would suggest is that there is no converse of Sievers' Law in Greek devocalizing morphologically motivated $*i\text{-y}$ sequences. The type of devocalization seen in τήμερον/σήμερον $< *ki\text{-āmeron}$ is distinct in that it only ever involves $*i + *V$ sequences across a morpheme boundary (see §3.5.3).

However, there is an additional complication. In order to explain the long vowel which seems to lie behind OCS *čajq* $< *k^w\text{ēy-e-}$, Ved. *cāyati*, etc., LIV² must assume a present with lengthened root vocalism. Beekes (2010:1490) prefers to do away with such Narten presents and reconstructs a root with a laryngeal $k^w\text{eH}_1\text{-i-}$. However, this in turn complicates the reconstruction of the Greek forms. Beekes supposes that the Greek $\bar{i}/i$ variation is due to secondary ablaut replacing an original alternation $*\bar{e}/*i < *k^w\text{eH}_1\text{-i-}/*k^w\text{H}_1\text{-i-}$. However, we might have expected a zero-grade $*k^w\text{H}_1\text{-i-}$ to develop differently depending on the following environment. Before a consonant many scholars would expect (possibly optional) laryngeal metathesis yielding $*k^w\text{H}_1\text{-C} > *k^w\text{-C}$. Before a vowel, Beekes suggests that the result would be τιε/o- ($< *k^w\text{H}_1\text{-e/o-}$). However, I know of no other clear examples of this development in Greek. In the absence of direct evidence we might equally well have expected vocalization of the laryngeal $*k^w\text{H}_1\text{-y-V-} > *k^w\text{ēy-V-}$ (cf. $*d\text{H}_1\text{-ye/o-} > \delta\acute{\epsilon}\omega$). None of these complications arise if we accept the Narten present analysis of forms with a long vowel in the root rather than assuming a laryngeal.

The initial sequence in *ἰέραξ* 'hawk, falcon' (Alcm., E., etc.), Hom. *ἰρηξ*, Hsch. *βεῖρακες*. *ἰέρακες* may be analogical. Frisk (1973:712) suggests an original form $*wiraks$ with the vocalism of *ἰέραξ* being folk etymological, based on *ἱερός* 'holy', which itself probably does not contain an original post-cononantal prevocalic $*i$, but, insofar as it has a secure etymology, might be taken back to $*is\text{H}_1\text{ro-}$ (see Beekes 2010:580–1).

I assume, with Beekes (2010:1579–80), that there is no separate verb *φλίω* (only *περιφλίωντος* in MSS of Nic. *Al*.62), but that this results from interference between *περιφλύω* 'well up with juice' and *φλιδάω* 'drip, decay, burst'.

The majority of potential examples of Greek $*CiyV\text{-}$ sequences occur in words for which there is no convincing etymology:

- δρίος* 'bush, shrub' (Hom.);
- ἰότης* 'will, decision';
- λίαν* 'very much';
- λιαρός* 'mild';
- μνίον* 'seaweed';
- μιάινω* 'stain, defile' (Hom.);
- μιαρός* 'defiled' (Hom.) and Myc. *mi-ja-ro*;
- σιᾱγών* 'jawbone, cheek' (Hp. etc.);
- σίαλον* 'spittle' (Hp., X., etc.);
- σίαλος* 'pig' and Myc. *si-a₂-ro*, etc.;

σκίουρος 'squirrel' (Opp., Plin.);
 φιάλη 'dish' and Myc. *pi-a₂-ra/pi-je-ra₃*;
 φιαρός 'gleaming' (Hell.);
 φλιά 'doorpost' (Hom.);
 ψιάδδοντι 'they play' (Lac. in Ar.);
 χνίει 'drips, breaks in pieces' and χνιαρωτέρρα (Hsch.);
 ψιάθος 'rush mat' (Ar. etc.);
 ψιάς 'drop of blood' (Hom.);
 ψίω 'feed with morsels, chew up' (Lyc., Euph., etc.).

3.9.5. Conclusions

It is surprisingly hard to find instances of word-initial **CiyV-* sequences in Greek that can be shown to be inherited as such from Indo-European. The only really viable examples consistently occur in paradigms where there would have been an obvious morphophonemic relation with stem forms containing syllabic **i* for reasons which have nothing to do with Lindeman's or Edgerton's Law, i.e. Myc. *ki-ti-je-si* = [*k₁tiyensi*], ἔφθινεν or φθίῃς, χιών, and indeed the only examples showing evidence for alternation between forms with **i* and **y* in the same root: ζάει/βίη and ζώω/ἐβίων.

This situation would be compatible with at least two different historical situations. On the one hand, all of these forms with potentially ancient **CiyV-* sequences and those with potential alternation between **i* and **y* belong to paradigms with at least one form which would have been potentially monosyllabic. This could be taken as evidence for Lindeman's Law. We have found no convincing counterexamples exhibiting a sequence **CCyV-*. On the other hand, these examples all belong to paradigms where syllabicity alternations would arise anyway, through ablaut alternations in the stem and/or the configurations prompted by various inflectional endings. It is only natural that these forms have a monosyllabic member of the paradigm, because it is precisely in paradigms such as this that we would be likely to find the necessary morphotactic environment in which paradigmatic alternation could arise, regardless of the truth or otherwise of Lindeman's Law. So these data would also be compatible with a reconstruction of Proto-Greek which inherited no word-initial syllabicity alternations from Indo-European.

In the light of the ambiguity of the Greek evidence, it remains unclear whether we should reconstruct semivowel syllabicity alternation in word-initial clusters for Indo-European. For the semivowels, at any rate, such a reconstruction essentially rests on the Vedic evidence, and the possible evidence of **u/*w* alternation in δύω/δῶδεχα, δίς (< **du-/*dw-*). As we have seen in the case of the Vedic evidence, the exact circumstances of alternation are difficult to ascertain, because the formulaic nature of the evidence may have imposed a bias on what was preserved. Unfortunately, the Greek evidence does not throw any additional light on the validity of Lindeman's monosyllabicity criterion.

From the point of view of understanding the synchronic nature of Sievers' Law phenomena at various stages, we would hope to be able to account for the disparity in the word-initial and word-internal behaviour of semivowels. Only in Germanic are the word-initial and word-internal situations able to be reconciled under a unified analysis based on an onset constraint **Cy-*, owing to the apparent absence of word-initial **Cy-* clusters. It is worth noting that in Vedic, although the situation word-internally might have been more or less rule-governed, word-initially matters were clearly unpredictable (i.e. lexically determined) for some considerable period. In Greek, alternation was either unpredictable or absent word-initially, and we shall presently look at the evidence for word-internal alternations. If we had strong comparative evidence for an onset constraint word-initially, then one might try to argue that the syllable structure of Greek had undergone a change, which would allow and indeed generalize **Cy-* clusters word-initially. However, as we have seen, there is no clear agreement between the Germanic and Vedic facts.

It may be that if Sievers' Law is to be reconstructed for Indo-European and accounted for in terms of a constraint on the composition of syllable onsets, then this constraint may have been relaxed in some way or avoided altogether word-initially. The comparative evidence does not support an onset constraint word-initially.¹¹⁴

3.10. CHRONOLOGICAL CONCLUSIONS

In this chapter we have outlined some of the limitations on this study, some principled and some practical. We have also explored some of the chronological and phonological issues which must inform a work of this kind.

In this study we will only consider the Greek evidence for the distribution of post-consonantal prevocalic **i* and **y*. It would not be practical to attempt a complete survey of all the semivowels and other resonants. It seems unnecessary to dwell on the behaviour of intervocalic and postvocalic **y* and inter-consonantal **i*, since this is much clearer and less in need of explanation. On the other hand, the behaviour of word-initial **y* constitutes a problem of a very different nature, and this will not be considered here.

We will only look at instances of **i* and **y* that stand a good chance of having an Indo-European origin, since it is the inheritance of potentially Indo-European patterns of alternation which are of principal interest. For this reason it has been necessary to provide an overview of many changes in the Greek population of semivowels, both to delimit the range of evidence which is likely to be of interest and to attempt to understand the interaction of Greek sound changes with the potential continuation of inherited patterns and with our ability to discern them.

We have found that instances of secondary Greek **y* do not seem to be governed by Sievers' Law, and this places a limit on the length of time for which any potentially inherited Sievers' Law could have functioned as a generally applicable

¹¹⁴ For a recognition of this fact and an alternative synchronic approach to Sievers' Law, see Byrd (2010).

phonological rule. If we want to investigate the possibility of Sievers' Law behaviour at an earlier stage in Greek, then there are only certain morphological categories which can be used in our investigation.

We saw that the testimony of the optative and the full-grade forms of the feminine suffix $*-iH_2/*-yeH_2-$ were very difficult to interpret. There are only three main categories of evidence which can, in principle, offer an insight into the Indo-European situation: the primary comparative adjectives in $*-yos-/*-iyos-$ etc., the nominals in $*-ye/o-$ / $*-iye/o-$, and the verbs in $*-ye/o-$. We will consider the evidence of nominal and verbal categories in turn.

Part II

Greek Nominal Categories

Sievers' Law in Greek: The Comparative

4.1. INTRODUCTION

In the preceding chapter we noted that alternation between the primary comparative suffixes **-iyos-/*-yos-* and **-iyon-/*-yon-* might furnish evidence for the operation of Sievers' Law at an early stage in Greek.¹ Indeed, this conclusion has been argued for a number of times, e.g. by Kuryłowicz (1956:275), Szemerényi (1968:31), Perpillou (1974:100–1), and Ruijgh (1975:92–3). This position is based on the observation that a great many comparatives with suffixes containing post-consonantal prevocalic **y* follow a light sequence, e.g. ὀλιζών 'smaller' < **olig-yon-*, πάσσων 'thicker' < **pnk^h-yon-*, βράσσων 'shorter' < **mrk^h-yon-*, κρέσσων 'stronger' (Ion., Pi.) < **kret-yon-*, βάσσων 'deeper' < **bnt^h-yon-*, etc. Furthermore, many comparatives with suffixes containing post-consonantal prevocalic **i* follow an arguably heavy sequence, e.g. ῥδίων 'sweeter' < **swād-iyon-* (< **sweH₂d-*), ῥίγιον 'more horrible' < **srīg-iyon-* (or **sriHg-*), ἀλγίων 'more painful' (Hom. etc.), κερδίων 'more profitable', αἰσχίων 'more shameful' (Hom. etc.), κῶδίων 'more glorious', etc. However, a number of factors stand in the way of any straightforward conclusion. As we shall see presently, there are exceptions to this pattern in both directions, and we will need to review all of the evidence carefully from an etymological point of view.

We shall see that the evidence we can reasonably bring to bear on the question of the early behaviour of the Greek semivowels is considerably more limited than that employed by Perpillou or Ruijgh. It is important to recognize that the history of this category requires a sophisticated assessment of what is inherited and what is new, using criteria that are neutral from the point of view of Sievers' Law. In other words, it would not be credible to scrutinize only the etymology of examples that break Sievers' Law, since this seems to incorporate an assumption that we are entitled to identify certain items as 'exceptions' and pare them down until we reach a Sievers' Law distribution. This risks prejudging the issue.

Furthermore, to deal with the comparative as if it had little significant chronological layering would lead to a biased picture of how much evidence actually

¹ Denoting disyllabic versions of the comparative suffix as **-iyos-* and **-iyon-* (rather than e.g. **-ios-* and **-ion-*) is not intended to anticipate the conclusion of our enquiry; some believe that the *-ιον-* suffix of Greek derives from **-ihon-* < **-is-on-*, but even under this analysis an intermediate stage **-iyon-* would not be ruled out.

exists for Sievers' Law, while giving no firm basis for dealing with the counterexamples. The resulting reduced body of evidence will allow us a surer insight.

Greek exhibits a considerable variety of primary comparative formations, and if we are to understand the legitimate use which we may make of any of the evidence from this category we first need to set these various suffixes into a diachronic context. Until we have reached an understanding of their historical relationships, it will be difficult to judge their contribution to questions of Indo-European phonology.

4.2. PRIMARY FORMATIONS

In Greek we find traces of the following primary comparative suffixes or suffix variants:²

- *-yos- in e.g. μέζους 'greater' (Hp.Morb.1.2.4.96) < *meg-yos-es;
- *-iyos- in e.g. Hom. χαχίους 'worse' (Od.2.277) < *kak-iyos-es;
- *-īyos- in e.g. Att. βελτίους 'better' (Ar.Ra.1009) < *belt-īyos-;
- *-yon- in e.g. μέζων (Hdt.1.137.5) < *meg-yōn;
- ιον- in e.g. Hom. χάχιον (Od.18.174) < *kak-iyon;
- ῖον- in e.g. Att. χάχιον (S.OT428) < *kak-īyon.

All of these formations appear to have been moribund even from the time of the earliest alphabetic data. The suffixes attached directly to the root rather than to the adjectival stem. Perhaps for this reason they proved unsuitable in the long term as a means of forming comparatives from adjectives; they were, in large part, superseded by the secondary -τερος forms, which attached instead to the adjectival stem.

Clearly Sievers' Law alone could not account for the proliferation of primary suffixes. We must establish which ones are ancient and need to be taken into account, by investigating their Indo-European origins, explaining the relationship between the *n*-stem and *s*-stem forms, and accounting for the variable length in -ῖων and *-īyos-. A subsidiary, but important, question concerns the ablaut properties which their paradigms may have exhibited at an early stage. We must also consider whether other more convincing explanations of the variation between *y and *i are available.

4.3. s-STEMS AND n-STEMS

We shall begin with the question of inflection. While *-yos-, *-iyos-, and *īyos- exhibit *s*-stem inflection, *-yon-, *-iyon-, and *īyon- show an *n*-stem. We need to consider whether this variability could be an Indo-European trait.

² For the moment I will use the terms 'suffix' or 'suffix variant' indiscriminately when applied to the primary comparative formations, until the nature of their historical relationship has been clarified.

4.3.1. The Origin of *s*-stem Inflection4.3.1.1. **-ye/os-*

It seems clear that we must reconstruct **-ye/os-*³ for Indo-European on the basis of a range of comparative evidence. For example, we find Lat. *seniōr* ‘older’ beside Ved. *sán-yas-* and OIr. *siníu* < IE **sen-ye/os-* and **sen-yōs-*, formed from a root **sen-* ‘old’ (cf. Lat. *senex*). Greek only reflects this suffix in a fossilized and defective paradigm:

Ionic acc. sg. m./f. μέζω ‘greater’ < **meg-yos-a* < **meg-yos-m*;⁴

Ionic nom./acc. n. pl. μέζω < **meg-yos-a* < **meg-yos-H₂*;

Ionic nom. m./f. pl. μέζους < **meg-yos-es*.⁵

We find such forms widely if sporadically attested, e.g. Hom. ἀμείνω ‘better’ (Il.3.11). Seiler (1950:12) pointed out that we only find the *s*-stem forms in Homer where there can be considered to be some metrical necessity. This may indicate their archaic status, but we should note that in Attic they seem particularly well represented (Chantraine 1961:108), and in inscriptions of the classical period the spelling -ω for the acc. sg. masc./fem. and nom./acc. neut. pl. and -ους for the nom./acc. masc./fem. pl. are the norm; secure examples of the corresponding *n*-stem forms are extremely rare (see Threaght 1996:311).

Mycenaean too preserves reflexes of the *s*-stem suffix **-yos-* in the same cases where it is found in later Greek:

nom. m./f. pl. *me-zo-e* = [mezohes] < **meg-yos-es*;

nom. n. pl. *me-zo-a₂* = [mezoha] < **meg-yos-a*.

In addition, Mycenaean has the nominative-accusative dual *me-zo-e* where later Greek does not preserve an *s*-stem.

So, Greek inherited at least one primary comparative suffix: **-yos-*. It seems most unlikely that in Indo-European this was limited to appearing in certain case forms. There is certainly no cross-linguistic basis for assuming as much.

4.3.1.2. **-īyos-*

The comparative evidence for the other two *s*-stem suffixes is considerably less robust. In Sanskrit we find comparatives in *-īyas-*, e.g. *návīyas-* ‘quite new’ and *távīyas-* ‘very strong’. This suffix is far more common than *-yas-* < **-yes-* and spreads at its expense; e.g. RV *návīyas-* represents an innovation beside the archaic *náv-yas-*. Naturally, *-īyas-* invites comparison with Greek **-īyos-*, but we shall see presently that there may be independent language-internal explanations for these

³ The ablaut properties of the suffix will be discussed in §4.6. Since Greek only seems to inherit a full-grade suffix with *o*-vocalism in the comparative formation itself, we shall generally refer to **-yos-* rather than **-ye/os-*.

⁴ On the possibility of a laryngeal in the root **megH₂-*, see §4.11.

⁵ We should note that the accusative plural form is also μέζους, but this must be analogical, since we would expect a form **meg-yos-ns* to give **mezōs*.

suffixes with $*\bar{i}$. There is a need to evaluate the competing possibilities, for which see the general discussion of the long $*\bar{i}$ forms in §4.4.2.

4.3.1.3. $*\text{-iyos-}$

It is tempting to identify $*\text{-iyos-}$ as a Sievers' Law alternant of $*\text{-yos-}$, and we shall see soon that this view has a great deal to recommend it. However, there have also been attempts to find other origins, both in Indo-European and in the history of Greek.

It has been argued that forms with $*\text{-iyos-}$ were originally $*\text{-ye/os-}$ comparatives built from i -stems.⁶ Bader (1975) suggests that in some instances a simplex i -stem should be reconstructed for Indo-European in place of what is conventionally regarded as a Caland $-i$ - suffix in the first elements of compounds; she argues that Greek ἄργυρ- ($< *H_2r\bar{g}i$ -, cf. Skt. *r̥ji*-), which is found in compounds, should be compared with the simple i -stem adjective in Hitt. *ḫarki*-. If we could accept that in some instances simplex i -stem forms stood in a relationship with Caland forms like u -stems, or s -stem nouns, then finding a comparative ῥῥῖων beside a u -stem ῥῥύς could be seen as evidence for a comparative with the suffix $*\text{-ye/os-}$ derived from a simple i -stem, i.e. $*sweH_2d\text{-i-ye/os-}$.

However, a number of considerations speak against this analysis. Firstly, there is no comparative evidence showing a particular tendency for i -stem adjectives or nouns to lie beside $*\text{-iye/os-}$ comparatives. Furthermore, whatever the status of the $*\text{-iye/os-}$ comparative might be, we have good evidence that the $*\text{-ye/os-}$ comparative is a primary formation, e.g. *κρέσσων* 'stronger' beside s -stem *κρέτος* (Aeolic) and the u -stem *κρατύς*; cf. Ved. *krátuh*, Goth. *hardus*. Therefore, simply adding this suffix to an i -stem nominal stem, rather than to the root, would be most unexpected at an early stage. It seems most unlikely that the origins of the $*\text{-iye/os-}$ comparative are to be explained in this way.

Another possibility is to see $*\text{-iyos-}$ as a Greek innovation, combining the syllabic semivowel of the suffix $-\text{iov-}$ with the s -stem inflection of the inherited suffix $*\text{-yos-}$, and/or $*\text{iyos-}$, if this is also inherited. Naturally, we should assess this idea in the light of an examination of the origin of n -stem $-\text{iov-}$, to which we now turn.

4.3.2. The Origin of n -stem Inflection

The $-\text{iov-}$ suffix is the most widespread of all the primary comparatives in Greek. Often it is traced back to Indo-European $*\text{-is-on-}$: a concatenation of the zero grade of $*\text{-yos-}$ and an extra suffix $*\text{-en-/on-}$.⁷ The same suffix sequence is found in Germanic, and Lithuanian shows a similar formation, albeit with a different vocalism:

⁶ See e.g. Benveniste (1935:84–5), Perpillou (1974:105–6), and Lamberterie (1990:21 and n. 8) with literature.

⁷ See e.g. Thurneysen (1895:551ff.), Chantraine (1961:108–9). Compare the $*\text{-is-}$ element in the superlative suffix $*\text{-is-to-}$; see e.g. Szemerényi (1990:196).

Goth. nom. sg. m. *manag-iza*; gen. sg. m. *manag-izin-s* < *-*is-en-* (cf. positive *manags* ‘many’);

Lith. *-esnis-* < *-*yes-nis*, e.g. *saldėsnis* ‘sweeter’ (cf. positive *saldūs*, beside OCS *sladŭkŭ* an enlarged form of the ‘salt’ root *-*sal-d-*; cf. Goth. *salt*, Arm. *alt*).

Whatever the value of these comparisons might be (and we shall see presently that their value is somewhat limited), Greek of the first millennium regularly exhibits *n*-stem inflection in forms which cannot possibly go back to *-*is-on-*: for example, we apparently have *-*yon-* in ἐλάσσονα ‘smaller, fewer’, ἐλάσσονες and -ῖον- in Att. ῥῆϊον. It has been supposed that this *n*-stem inflection originated in *-*is-on-* and then spread to other comparatives (see e.g. Chantraine 1961:109). Such a spread would be perfectly understandable: intervocalic **s* was lost in Greek, so the decline of a form such as μέζους (Hipp.) < *-*meg-yos-es* in favour of μέζονες (Hdt.) might be motivated early on by a tendency to fill a hiatus, or at a later stage by the possibility of creating a more clearly segmentable inflectional paradigm.

The dates of first attestation for *n*-stem and *s*-stem forms do not offer any certain indication that one set of suffixes is earlier than the other. While it is true that Mycenaean shows absolutely no sign of the *n*-stem comparatives *-*yon-*, *-*iyon-*, or *-*īyon-* in any of the contexts where the orthography might have allowed us to see them, and we always have *s*-stem forms wherever the evidence is unambiguous, nevertheless, such negative evidence in itself proves nothing.

A clearer chronological indication may be found in the fact that *s*-stem forms exhibit a highly limited distribution in Greek, in terms of both frequency and the case forms which can occur, and it seems likely that they have been displaced by a spread of the *n*-stem type. Moreover, *n*-stems frequently displace *s*-stems in Greek. As Szemerényi (1968:29) points out, we find apparently fossilized *s*-stem forms standing next to otherwise ordinary *n*-stem nouns—e.g. αἰών ‘lifetime’ is a normal *n*-stem in classical times, but certain forms such as acc. sg. αἰῶ and the Doric adverb αἰές ‘ever, always’ indicate the existence of an ancient *s*-stem (of which αἰεί seems to be the locative); the *n*-stem noun εἰκὼν ‘likeness’ reflects an *s*-stem in the acc. sg. εἰκῶ and gen. sg. εἰκοῦς. We may find the same pattern in the anomalous accusatives Ἀπόλλω and Ποσειδῶ beside Ἀπόλλωνα and Ποσειδῶνα.

These developments testify to a tendency to replace *s*-stems with *n*-stems in certain categories, whatever the mechanism might be.⁸ A plausible scenario would involve the *n*-stem comparatives with *-*yon-* replacing forms which originally had the suffix *-*yos-*, and forms with -ῖον- replacing those with *-*iyos-* (if the *-*iyos-* suffix already existed at the relevant stage). Indeed, the antiquity of *n*-stem inflection in the -ιον- comparative itself might be open to question if the spread of *n*-stem inflection is of a more general character.

⁸ If we require an analogical proportion to explain these developments, we could look to the dat. pl. in -(ι)οσι, which comes to be a point of overlap in *s*-stem and *n*-stem paradigms; see Szemerényi (1968:30). In the *s*-stems *-*yosi/-īosi* can come directly from *-(i)*yos-si*. The expected dat. pl. ending of *n*-stems -ασι < *-*n-si* is found in Cret. πλιασι ‘more’ and Myc. *te-ka-ta-si* (in TH Fq 247 from τέκτων ‘carpenter’). This was generally replaced at an early stage by -οσι through levelling in the paradigm: e.g. nom. sg. ὄξμων ‘anvil’ (acc. sg. ὄξμονα) has a dat. pl. ὄξμοσι, which must have replaced the expected form **akmasi* < **akm-n-si*. This common dat. pl. ending could have acted as a starting point for the process: i.e. ὄξμοσι : ὄξμων :: ῥῆϊοσι : X, where X = ῥῆϊων. However, this mechanism only works in dialects and in periods in which the inherited *n*-stem dat. pl. underwent a replacement.

If we took the view that the original Indo-European suffixes were **-yos-*, **-is-on-*, and perhaps **-īyos-*, then a spread of *n*-stem inflection producing **-yon-* and **-īyon-* would be perfectly explicable, given the loss of intervocalic **s*. However, the creation of the suffix **-iyos-* as an *s*-stem counterpart for the suffix *-iov-* would be against all expectation; if *-iov-* derived from **-is-on-*, then the formal parallelisms with *s*-stem **-īyos-* and the reflex of **-yos-* would only have become apparent after the loss of intervocalic **s*, but to spread *s*-stem inflection at that stage would seem to run in the opposite direction to the general pattern of development. From this perspective, it seems more likely that **-iyos-* was inherited by Greek rather than being created within Greek.

4.3.2.1. The Antiquity of *-iov-*

The idea that *-iov-* goes back to a concatenation **-is-on-* has been challenged. Szemerényi (1968:27–8) proposed a different explanation for the range of comparative forms in Greek and for the origin of *n*-stem inflection. As we saw, the reconstruction of **-is-on-* relied on Germanic and Lithuanian comparative evidence. Szemerényi argued that since a system of weak (*n*-stem) inflection developed quite generally in Germanic among the adjectives, it is not surprising to find an *n*-stem comparative adjective suffix in Germanic. Furthermore, it is natural that the original **-yos-* paradigm should have been completely replaced by the new weak type (contrary to the normal syntactic alternation of strong and weak adjectival forms); the effects of sound change on its original ablaut alternations would have rendered it completely irregular. Szemerényi (1968:27–8) also doubted the Lithuanian comparison. Although we find a similar composite suffix involving **-yes-* with a nasal enlargement, there is no trace of this enlargement in Slavonic, and the Lithuanian formation could be due to contact with Germanic.

According to this account, the comparative basis for reconstructing **-is-on-* for Indo-European is effectively removed.⁹ An alternative origin for Greek *-iov-* lies readily to hand, if we accept that *n*-stem inflection was spreading in Greek; *-iov-*, *-īov-*, and **-yon-* can be easily understood as a Greek *innovation*. Under this analysis, **-iyos-*, **-yos-*, and perhaps *-iyos-* would have been more archaic forms.

4.4. THE LENGTH OF **ī* IN **-īyos-* AND *-īov-*

If we accept that the *n*-stem forms are an innovation, then we are still left with the problem of how the form **-īyos-* relates to **-yos-* and **-iyos-*. Uniquely, Greek presents us with comparatives with both long and short **ī*. We must consider how they are distributed in Greek and establish what their significance may be from the point of view of Indo-European.

⁹ We should note that the Sanskrit comparative paradigm shows apparent traces of *n*-stem inflection. However, Thurneysen (1895:554) showed that the Greek and Sanskrit *n*-stem forms are not related.

4.4.1. The Distribution of ī in Greek

It is implicit in most accounts that the long ī of -īων- and *-īyos- is a variant of the short ι of -ιων- and *-iyos-, since they appear to be distributed on a dialectal basis. It is sometimes stated that this ι is long in Attic, short in Pindar (e.g. *ἀλλῖον* ‘more beautiful’ P.5.12, *αἰσχῖω* ‘uglier’ I.7.22, according to the text of the *codices triciniani*), and either long or short in Homer (see e.g. Chantraine 1961:109).

However, we should note that the Attic data are not completely uniform: while forms with ī predominate, e.g. *ῥῥῖων* and *ῥῥῖω*, we do find forms with short ι, albeit far less frequently, e.g. *ῥῥῖον* (E.Supp.1101).¹⁰

The situation in Homer has been somewhat misrepresented (cf. Seiler 1950: 15–16). We do not find any examples of comparatives with long ī. We find the following forms with the suffix -ιων- or *-iyos- in the Iliad and Odyssey, all with a demonstrably short ι vowel. I give one instance from each work where possible (for a full list of occurrences, consult Meyer 1878:14–15):

- ἄλγῖον* ‘more painful’ (Il.18.278, Od.4.292);
- κέρδῖον* ‘more profitable’ (Il.3.41, Od.2.74);
- λῶῖον* ‘more desirable’ (Il.1.229, Od.2.169);¹¹
- ῥῖγῖον* ‘more horrible’ (Il.1.325, Od.17.191);
- αἰσχῖον* ‘uglier’ (Il.21.437);
- γλυκῖον* ‘sweeter’ (Od.9.34), *γλυκῖων* (Il.1.249);
- κάκῖον* ‘worse’ (Od.18.174), *κακῖων* (Od.14.56), *κακῖους* (Od.2.277);
- ἀλλῖον* ‘more beautiful’ (Il.24.52, Od.6.39), *καλλῖονες* (Od.10.396);
- φιλῖων* ‘dearer’ (Od.19.351 = 24.268).

The claim that the ι may be long in Homer seems to rest on the fact that we find the noun *βραχῖων* ‘upper arm’, which has been assumed to be an ancient comparative in origin (see Poll.2. 138).¹² The implication is that once there existed comparatives with -īων in the nominative singular.

Schulze (1892:299–301) developed a theory that long ī and short ι originally coexisted in the paradigm. In the nominative singular masculine and feminine he expected to find long ī (in Homer potentially exemplified only by *βραχῖων*), but in the nominative singular neuter a short ι would be the norm. Since most of the Homeric evidence consists of nominative neuter singular forms, the predominance of short-vowel comparatives was to be expected.

Schulze’s arguments do not seem particularly convincing. On a general level, we ought to note that his paradigmatic distribution is not actually attested anywhere. He admits that this is a pattern ‘A quo usu omnes postea desciverunt’. More

¹⁰ Note that the emendation of this line accepted in Diggle’s edition allows a long ī reading.

¹¹ We should note that the status of this form as a comparative adjective is disputed, see §4.13.3.

¹² We should note that even if this is correct, there is also a comparative in *-ye/os- from *βραχός* ‘short’: *βράσσων* (← **mrg^h-yos-*), only at Il.10.226; see §4.8.1.

specifically, the only evidence for $\bar{\iota}\omega\nu$ - in Homer rests on the far from certain etymological speculation that $\beta\rho\alpha\chi\bar{\iota}\omega\nu$ derives from a comparative meaning 'the shorter one'.¹³ All other forms point towards the ι of $\iota\omega\nu$ - being consistently short. Furthermore, in the nominative singular masculine, where according to Schulze's theory we should find $\bar{\iota}\omega\nu$, we actually have the short form $\iota\omega\nu$ attested in $\phi\iota\lambda\iota\omega\nu$ etc. I think that we may conclude with Seiler (1950:15–16) that this ι is consistently short in Homer, just as in Pindar.

Long $\bar{\iota}$ forms are not exclusive to Attic. We can find a few isolated examples of long $\bar{\iota}$ elsewhere: $\chi\acute{\alpha}\chi\bar{\iota}\omega\nu$ in Theognis (1.1175); $\kappa\bar{\upsilon}\delta\bar{\iota}\omega\nu$ in Aethiopis (fr.3.2); $\chi\acute{\alpha}\lambda\lambda\bar{\iota}\omega\nu$ in Simonides (epigr.152.3);¹⁴ $\chi\acute{\alpha}\chi\bar{\iota}\omega\nu$ in an elegiac couplet attributed to Archilochus by Plutarch (*adolescens* 12.33a–b). However, that seems to be the extent of the exceptions. We can at least say that, in Attic, forms in long $\bar{\iota}$ are predominant, whereas short ι is the norm in other metrical texts for which there are data. If we think that the lengthening of $\bar{\iota}$ is an Attic innovation, then we would have to explain these few instances of $\bar{\iota}$ in other literary dialects as a contamination of the textual tradition, or as cross-dialectal influence. An alternative might be to suppose that conditions which allowed this lengthening to arise were available in more than one dialect, and that Attic was exceptional in terms of the widespread nature of the change.

4.4.2. The Origin of $\bar{\iota}$

In spite of the essentially dialectal nature of the distribution of forms with long and short ι , there is no guarantee that the origin of the variation lies in the individual dialects, since the variants might have been distributed on some other basis at an earlier period, with different dialects generalizing one or another. Traditionally, Gk $*\bar{\iota}yos$ - has been compared with Ved. $\bar{\iota}yas$ -, in e.g. Skt $n\acute{a}v\bar{\iota}yas$ - 'quite new', $t\acute{a}v\bar{\iota}yas$ - 'very strong'.¹⁵ This would require us to attribute a suffix $*\bar{\iota}ye/os$ - to Indo-European which could not owe its long $*\bar{\iota}$ vowel to compensatory lengthening resulting from laryngeal loss. How acceptable this reconstructed $*\bar{\iota}$ would be depends largely on one's view of the Indo-European phoneme inventory.

We ought to note that in Vedic there is no alternation of length of the sort which we find in Greek, and so we would still be left with the question of where the Greek $*\bar{\iota}yos$ -/ $\bar{\iota}yos$ - alternation comes from. We cannot immediately exclude the possibility that Greek preserves an Indo-European opposition of length which has been levelled out elsewhere, so that from IE $*\bar{\iota}yos$ - and $*\iota yos$ -, Sanskrit may have generalized the long form.

However, the Vedic long-vowel comparison is potentially undermined by the availability of a purely Indic explanation for the long $\bar{\iota}$ vowel, which could

¹³ Seiler (1950:42–3) argued that this form was not a comparative at all. See Lamberterie (1990:164–70) for discussion.

¹⁴ Here $\tau\omicron\iota\omicron\upsilon\tau\omicron\nu$ may be read instead of $\chi\acute{\alpha}\lambda\lambda\bar{\iota}\omega\nu$.

¹⁵ Schulze (1892:301) noticed the parallelism of the Greek and Sanskrit suffixes: 'cf. formas sanskriticas in $\bar{\iota}yas$, quae graecis in $\bar{\iota}\omega\nu$ accuratissime respondent', though the comparison with the Greek n -stem, as opposed to s -stem, suffix must be mistaken.

have arisen in laryngeal final roots, e.g. *tāriyas-* ‘more easily passing through’ < **terH-yos-*.¹⁶ This explanation sits rather uneasily with Pinault’s (1982) view that word-internal post-consonantal laryngeals were lost before **y* already in the history of Indo-European. Pinault (1982:267–8) argues that we can find the archaic shape of comparatives from *seṭ* roots in examples like Ved. *tav-yas-* < **tewH-yes-* and *pán-yas-* (from the *seṭ* root *panⁱ*), which were replaced by *tav-īyas-* and *pán-īyas-* respectively. Nevertheless, even if we accept Pinault’s rule for an early stage of Indo-European, this would not rule out the possibility that root-final laryngeals could have been restored analogically in some cases, and from such analogically restored examples the *-īyas-* suffix could have arisen in Vedic.

An alternative Indo-European origin for the long-vowel form of the Greek comparative suffix might be sought in the relationship of the primary comparative to the system of Caland suffixes (see Seiler 1950:17–18). Caland (1889:267–8) noticed that certain nominals in **-ro-* (**-no-* etc.) substituted their stem suffix for an **-i-* suffix in composition, e.g. *κυδρός* ‘renowned’ beside *κυδι-άνειρα* ‘bringing renown to men’. In Vedic there is an alternation in the length of this *i*-composition suffix, e.g. *tuvi-kratú-* ‘very powerful’ beside *tuvi-maghá* ‘very rich’. If such an alternation of long and short **i* went back to Indo-European, then it is conceivable that this could have influenced the length of the **i* vowel in the primary comparative suffix as well, given their close relationship to the Caland system (e.g. *κυδιών* beside *κυδρός*). In turn, such a length alternation could be reflected by the Greek suffixes **-īyos-* and **-iyos-*.

However, this theory does not seem especially compelling in light of the fact that Greek is the only Indo-European language to show the length alternation in the comparative, yet there is no similar variation in the compounds with Caland **-i-*. Conversely, while Vedic has the variation in compounds, there is no corresponding alternation in the comparative. So we have no evidence for a link between these phenomena.

Overall, an Indo-European origin for the Greek long-vowel comparative is not possible to demonstrate with any degree of certainty. Furthermore, a plausible Greek origin for the vowel length has been suggested. Kuryłowicz (1956:275–6) argued that the *-ων* comparatives fell under the influence of the comparatives in **-yon-*, where the root vowel could be lengthened by purely phonetic processes (e.g. in *χείρων* ‘inferior’ if from **k^her-yōn*). A more or less dialect-specific rule may have developed whereby comparatives in *-ων* tended to be preceded by a syllable containing a long vowel. Support for such a position can be found in the spread of the lengthened root vowel in Attic, beyond the forms where it is expected, e.g. Att. *μείζων* beside Ion., Arc., Dor., and Aeol. *μέζων*. If the comparatives in **-iyos-* and **-iyon-* were affected by a simple lengthening rule in some dialects, then we might reasonably expect **-īyos-* and **-īyon-* to be the result. Furthermore, it is probably significant that it is Attic where we find the spread of such long-vowel root vocalism, as well as the predominance of the long *ī* form of the suffix.

¹⁶ For the variability in the length of Skt *ī* < **H*, see Jamison (1988).

4.5. A QUESTION OF METHODOLOGY

In the light of this discussion, it seems certain that we should reconstruct for Indo-European only a subset of the six Greek suffixes *-iyon-*, *-īyon-*, **-yon-*, **-iyos-*, **-īyos-*, and **-yos-*. The arguments presented here suggest that the *n*-stem suffixes are best seen as innovations in the history of Greek, competing with and partially replacing the *s*-stems. We need to consider the extent to which the distribution of *n*-stems might reflect the earlier distribution of *s*-stems. Furthermore, it is not yet clear whether the long *ī* forms of the comparative already existed in Indo-European, or whether they arose later, perhaps even later than the period in which the *n*-stem forms began to spread (if the long-vowel forms are indeed an Attic innovation). The fact that there must have been a certain amount of suffix replacement raises inevitable questions of methodology. If we do not always have the original suffixes, we must question the extent to which we are entitled to use the distribution of attested suffixes as a proxy for an earlier state of affairs.

If the forms with long **ī* were an early feature of Indo-European itself, then, in principle, these could constitute lengthened forms of the **-iyos-* suffix, and so they might still allow us an insight into the earlier distribution of Indo-European **ī* under certain circumstances. On the other hand, if **-īyos-* was a suffix of independent origin and not the outcome of a lengthening, there would be no realistic hope of untangling its distribution from that of **-iyos-*, since the Greek opposition between *-iyos-* and *īyos-* is essentially dialectal: broadly speaking, the roots to which *-iyos-* attaches in the majority of Greek dialects show *īyos-* in Attic. Given the similar lexical patterning of *-iyos-* and *īyos-* in Greek, we would have to suppose that one suffix subsumed the original lexical constituency of the other in the relevant dialects. In such a case, we could not legitimately infer what the distribution of **-iyos-* or **-īyos-* alone might have been in the first instance. Even if we assumed that the Vedic long-vowel suffix had the same origin, it does not stand in opposition to a short-vowel formation and is in the process of spreading; clearly this cannot provide useful distributional information either.

If both **-iyos-* and **-īyos-* were independent suffixes in Indo-European and their distributions became totally confused in Greek, then we might expect the contrast between **-yos-* and **-iyos-/*-īyos-* to be governed by some idiosyncratic set of morphological or phonological principles, or indeed for there to be no discernible pattern in their distribution. Under such assumptions we would have to judge it intrinsically unlikely that the opposition between **-yos-* and **-iyos-/*-īyos-* would fall into anything like a Sievers' Law distribution of syllabic and non-syllabic semivowels: there is no comparative evidence for supposing that **ī* underwent Sievers' Law alternations of any kind. If we found such a distribution, then there are two possible conclusions: either Sievers' Law did affect **ī* after all, contrary to expectation, or else the theory of an independent origin for the long-vowel forms of the suffix should be judged to be undermined, and we should favour instead the notion that **-īyos-* is actually a lengthened form of **-iyos-*, at whatever stage in history this may have occurred.

If **-īyos-* is from **-iyos-*, whether this partial suffix replacement or lengthening occurred in Indo-European itself or at some stage in Common Greek, or in the Attic dialect alone, it might still be possible to recover information about the original Indo-European distribution of **ī* and **y*. The original distribution

would be effectively preserved provided that the **-īyos-* suffix consistently replaced **-iyos-* rather than **-yos-*, and provided that the **-īyon-* suffix consistently replaced **-iyon-* rather than **-yon-* (if the *n*-stem forms had already developed at the relevant stage).

If the process of replacement was more complex and long *ī* sometimes replaced **y*, then the effects we would expect to see depend on our view of the chronology. If the lengthening process belonged to Indo-European or Common Greek, then we would have to assume that it did not affect every instance of **-iyos-* (and perhaps **-iyon-* if it already existed at the relevant stage), since the short forms survived and indeed were generalized in most Greek dialects. Whatever distributional principles might have governed long and short **i* in Indo-European or Common Greek would necessarily elude us, since we would have to assume levelling of the alternants in different dialects. If **-īyos-* sometimes replaced **-yos-* rather than **-iyos-* in Indo-European or Common Greek, and **-īyon-* sometimes replaced **-yon-* rather than **-iyon-* (assuming for a moment that the *n*-stem forms existed at the relevant stage), then this would be manifested as an extension of the distribution of syllabic forms (long or short) in all Greek dialects at the expense of forms with **y*. This putative outcome would be difficult to detect, since we do not have independent evidence for the original distribution of suffixes, and so to claim that a suffix has spread risks begging the question. Furthermore, we might expect the analogical extension of syllabic forms of the comparative suffix in any event, since the Greek loss of **y* with palatalization would make syllabic forms morphologically more transparent. So an inconsistent replacement pattern of this kind would be very difficult to demonstrate. But if there was an essentially random pattern of replacement, then we would not expect any inherited Sievers' Law pattern to be clearly preserved, and so if we see such a pattern, we have to conclude that either Sievers' Law arose in the history of Greek—a conclusion seemingly at odds with the evidence for Sievers' Law being broken by all manner of Greek historical developments from an early to a late stage—or that the replacement pattern was after all a predictable one involving forms with a syllabic semivowel undergoing a process of lengthening.

If the lengthening process was principally an Attic innovation—a position for which there is a good deal of support—then, given the close agreement in the lexical constituency between **-iyos-/*-iyon-* and **-īyos-/*-īyon-*, it would be reasonable to conclude that **-īyos-* and *-īον-* constitute direct replacements for **-iyos-* and *-ιον-* respectively. If this is the case, then we can use Attic long *ī* forms as indirect evidence for earlier short *ī* forms. If the replacement process had not been so straightforward, and forms with *ī* sometimes replaced forms with **y*, then we would have expected any original syllabicity distribution to be skewed in favour of the forms with *ī* in Attic alone. Since there is no clear indication that forms with a syllabic semivowel are disproportionately represented in Attic over other dialects, we can rule out this last possibility.

When it comes to our ability to use the evidence of forms with *n*-stem inflection in the comparative, similar arguments apply. Insofar as we think that *n*-stem inflection is a comparatively late, purely Greek development, the simplest supposition would be that **-iyon-* replaced **-iyos-*, **-īyon-* replaced *-īyos-*, and **-yon-* replaced **-yos-*; if the replacement mechanism was a proportional analogy, then we might reasonably expect a consistent pattern of this kind. In such a case the

distribution of the *n*-stem forms would provide surrogate evidence for the original distribution of the corresponding ancient *s*-stem forms. If, on the other hand, replacement was completely inconsistent, with $-\iota\omicron\nu-$, $-\bar{\iota}\omicron\nu-$, or $*-yon-$ sometimes replacing $*-iyos-$, sometimes $*-i\bar{y}os-$, and sometimes $*-yos-$, then we have no hope of discovering the original distribution. We need to make an assumption of consistency, in the first instance, in order to pursue any meaningful study using all the data. If no consistent pattern emerges, then we can return to discuss this assumption's validity.

So we may begin work with the assumption that the six Greek primary comparative suffixes may represent a single Indo-European pair of suffixes, $*-\tilde{i}os-$ and $*-yos-$. The split in Greek may be attributed to two trends: the widespread replacement of *s*-stem inflection by *n*-stem inflection, and the lengthening of $*i$ whether in Indo-European, Common Greek, or Attic.

In the first instance we can use attested Greek syllabic variants as evidence for syllabic variants in Proto-Greek. We can use the Greek non-syllabic variants as evidence for non-syllabic variants in Proto-Greek. We have yet to establish what relationship may exist between $*-\tilde{i}os-$ and $*-yos-$.¹⁷

4.6. THE IMPACT OF ABLAUT

There are no direct traces of paradigmatic ablaut in the Greek primary comparative. Nevertheless, if there was such ablaut at an earlier stage, then it might have interacted with any potential inherited syllabicity alternations, and so we ought to investigate the possibility.

4.6.1. Early Ablaut Patterns

Seiler (1950:21–2) argued that this formation was originally associated with an accented full-grade root. This view is supported by some comparative evidence, e.g.:

Ved. *gářīyas-* 'heavier' next to the positive form *gurú-*;

mráđīyas- 'softer' next to *mṛḍu-*;

drāgh-īyas- 'longer' < $*dléH_1g^h-$ next to *dirgh-á-* < $*dlH_1g^h-ó-$.

In Germanic we seem to find confirmation of the accented root in *jūhiza* 'younger' next to positive *juggs*. In Greek itself the evidence is somewhat less clear. Sometimes we find a full-grade root: e.g. $\hat{\eta}\delta\acute{\iota}\omega\nu$ < $*sweH_2d-$ beside $\hat{\eta}\delta\acute{\upsilon}\varsigma$ (cf. Ved. *svāđīyas-*). In one instance we find a full grade in the comparative contrasting with zero grade in the corresponding *u*-stem: Ion. $\kappa\rho\acute{\epsilon}\sigma\sigma\omega\nu$ 'stronger' beside $\kappa\rho\alpha\tau\acute{\upsilon}\varsigma$.

¹⁷ In general I shall cite attested Greek comparatives in their common *n*-stem form and disyllabic suffixes in their dialectally widespread short $-\iota\omicron\nu-$ variant rather than the primarily Attic long $-\bar{\iota}\omicron\nu-$ form; reconstructed Proto-Greek, Common Greek, or Indo-European forms are given with the *s*-stem forms of the suffix. This reflects some of the conclusions reached here, though some aspects necessarily remain preliminary, pending an overall analysis.

But usually we find a zero-grade root in the comparative beside a zero grade in an associated noun or adjective formation:

βάσσων ‘deeper’ beside βαθύς, βάθος contrast βένθος;
πάσσων ‘thicker’ beside παχύς.

If we could work on the assumption that the original formation required a full-grade root, then we could draw the conclusion that there was a tendency in Greek for the root vocalism in the comparative to come to match that of the positive. In this respect the isolated contrast in ablaut grade between the positive and comparative in Ion. κρέσσων ‘stronger’ vs κρατύς would represent a precious archaism. Such a hypothesis would allow us to develop a rough chronology, in that we could know whether a formation represented a Greek analogical development.

However, the matter is not settled, for the question of ablaut in the root cannot be treated in isolation from that of ablaut in the suffix, which exhibits traces of different ablaut grades in different languages. The Latin comparative adverb *magis* ‘more’ seems to have a zero-grade suffix *-is-* (cf. *magnus*).¹⁸ Skt *-yas-* presupposes the *e*-grade form.^{19,20} Greek only preserves *o*-grade **-yos-/*-iyos-* forms. The reflex of a lengthened *o*-grade **-yōs-* appears in Lat. gen. sg. *melīōris* ‘better’, etc.

If we find traces of full-grade forms of the root and the suffix, this is often considered sufficient to reconstruct a proterokinetic (proterodynamic) paradigm for Indo-European. Rix (1992:123) reconstructs such a paradigm for the comparative. This implies that in the strong cases the root was full grade and accented, while the suffix was zero grade. In the weak cases the root would be zero grade and the full-grade suffix would be accented. We may need to posit a somewhat richer pattern of ablaut in order to account for the occurrence of the *e*-grade, *o*-grade, and possibly zero-grade and lengthened *o*-grade suffix, and zero-grade and *e*-grade root. Perhaps a *holokinetic* paradigm might be a candidate (cf. nom. **dʰéǵʰōm* ‘earth’, acc. **dhéǵʰ-om-n̄*, gen. *dʰǵʰ-n̄m-és*, loc. **dʰǵʰ-ém*).

Whatever the original pattern may have been, these observations rule out the possibility of simplistic arguments such as ‘form X has a zero-grade root and so represents an innovation’. Zero-grade roots may be just as old as full-grade forms. Insofar as we expect alternation, a static full-grade root is just as much an innovation as a zero grade.

Given that none of the Greek comparatives retain paradigmatic root ablaut, our use of this evidence to draw conclusions about any inherited weight-dependent syllabicity alternations becomes rather problematical. We find a full-grade root in Ion. κρέσσων ‘stronger’ ← **kret-yos-* and a zero-grade root in Cret. ἄρτων, Dor.

¹⁸ Supporting evidence for the existence of a zero-grade form of the **-ye/os-* suffix may be found in the superlative suffix **-is-to-*, if it incorporates zero-grade **-is-*. Similarly, the Germanic suffix in Goth. *manag-iza*, gen. *manag-izin-s* (positive *manags* ‘many’) also seems to contain **-is-*. Of course, the zero-grade suffix in these other formations does not provide evidence that the primary comparative itself exhibited zero grade somewhere in the paradigm.

¹⁹ If we supposed an *o*-vocalism in Sanskrit and believed in Brugmann’s Law (which I do), then we would expect a lengthening of such an **o* in an open syllable, incorrectly giving **-yās-*.

²⁰ Support for the existence of a full-grade form of the suffix is also found in the related Lithuanian suffix *-ėsnis-* < **-yes-nis*, in e.g. *saldėsnis* ‘sweeter’. But this, in itself, does not provide additional evidence for a full-grade form of the suffix within the primary comparative paradigm itself; strictly it just shows that the suffix was capable of full-grade ablaut.

κάρρων (< **karsōn*) both from **krt-yōn*; it seems arbitrary to give one historical priority over the other on the basis of ablaut grade alone, if there is a good chance that there was some sort of root ablaut alternation in the first instance. Matters become more difficult when such root ablaut could have produced differences in the weight of the sequence preceding the suffix. We find a zero-grade root in βάσσων 'deeper' ← **bnt^h-yos-* (see §4.8.1), but if some parts of the paradigm once employed the full-grade root (cf. the *s*-stem neuter βένθος), then, if anything like Sievers' Law once applied, it is easy to imagine a situation in which we might expect paradigmatic alternations in the syllabicity of semivowels to emerge. It would seem that knowing exactly how the paradigm was structured at various historical stages would be a prerequisite to using any of the evidence, yet such knowledge is almost certainly beyond our reach.

It is at least possible to note that if all the evidence was effectively remodelled, then the chronology of any such remodelling matters a great deal. Provided that the paradigms were levelled at a sufficiently early stage, then it is possible that any syllabicity distributions we find still reflect the early phonological rules of Greek, or even Indo-European. On the other hand, we should certainly remain open to the possibility of any purely Greek processes which could have motivated the split between comparatives with the disyllabic suffix *-*iyos-* and monosyllabic *-*yos-*.

4.6.2. Syllabicity Alternation through Ablaut?

If we take it that the zero-grade suffix occurred in certain parts of the paradigm, then under certain circumstances it is conceivable that **i*/**y* syllabicity alternations of some sort could have arisen within Greek without needing to invoke the operation of Sievers' Law. If we assumed that there was a zero-grade suffix in the genitive singular, i.e. **ROOT-is-ōs* (e.g. in a holokinetic paradigm), this would eventually have yielded *-*ihos-* > *-*i(y)os* after the loss of intervocalic **s*. A paradigm containing acc. sg. *-*yos-a*, gen. sg. *-*i(y)-os* would have been highly aberrant in a Greek context, and prone to remodelling. Conceivably, the genitive could have been re-determined as *-*iyos-os*, and from such origins the syllabic semivowel could have spread.

However, this scenario is most unlikely, since we would have to assume that a highly disruptive ablaut pattern in the suffix survived into the post-Mycenaean period. In any event, if this were truly the origin of syllabicity alternation in this suffix, we would certainly not expect it to fall into any kind of Sievers' Law distribution. We might expect a morphological, semantic, or even random distribution of forms, but a Sievers' Law pattern would be quite a coincidence. There is plenty of evidence that, if Sievers' Law was inherited, it could not and did not survive as a phonological principle for very long in Greek, certainly not until the post-Mycenaean period. Nor is there any indication that it was invented or reinvented independently in any Greek dialect in such a period; indeed, there is evidence against such a supposition. Therefore, if we find a distribution of suffixes that accords with Sievers' Law, and if we believe in an ablaut-based theory of its origin, then we would be forced to accept the rather unconvincing position that this was a suffix-specific, post-Mycenaean innovation of an unparalleled nature.

4.7. A CATEGORIZATION OF THE COMPARATIVES

Comparatives exist beside a variety of different positive stem-forms in Greek. In order to look at these in a manageable fashion, I will divide the data into a number of categories, according to the type of positive adjective which stands next to the comparative. So we consider the comparatives next to *u*-stem adjectives separately from those next to thematic adjectives or adjectives with the suffix *-ρο-*. Similarly we separate out those comparatives which do not lie next to adjectives, but next to nouns or adverbs. This is not merely for expository convenience: as we shall see, it also reveals a number of interesting contrasts in their development. Where a comparative lies beside more than one nominal category, we discuss it at the first relevant opportunity.

4.8. COMPARATIVES NEXT TO *u*-STEM ADJECTIVES

The largest group of primary comparatives in Greek is formed from roots that also exhibit a *u*-stem adjective. This patterning within the Caland system is a characteristic inherited from Indo-European and can be closely paralleled in Indo-Iranian. We find a mixture of forms with the monosyllabic suffixes such as **-yon-*, as well as forms with disyllabic suffixes such as **-iyon-*: e.g. *κρέσσων* beside *κρατύς* and *ῥδίων* beside *ῥδύς*. In some cases we find competing comparative formations in **-yon-* (or **-yos-*) beside forms in **-iyon-* (**-iyos-*, **-īyos-*, or **-īyon-*) built from one and the same root (see Perpillou 1974:100). In almost all such instances the formations with monosyllabic suffixes are attested earlier than those with disyllabic suffixes—e.g. *πάσσων* is in Homer, while *παχίων* occurs in Aratus; *θάσσων* ‘faster’ is in Homer and Attic has *θάπτων*, while *ταχίων* is found only in later prose writers (see Seiler 1950:37–8). A form such as *ταχίων* could have been rebuilt from the positive adjective according to an analogical proportion such as *ῥδύς* : *ῥδίων* :: *ταχύς* : X, where X = *ταχίων*. Regardless of our belief or lack of belief in Sievers’ Law, if we accept that the date of attestation in these instances reflects in any way the date of formation, then we have to admit that **-iyos-/*-iyon-* enjoyed a period of productivity, replacing earlier forms in **-yos-/*-yon-*. The spread of the disyllabic suffixes under certain conditions is not at all surprising. After palatalization and the loss of an independent segment **y* in Greek, comparatives with the suffix **-yos-* would have been less morphologically transparent than those with **-iyos-*, since Greek palatalization results in a merger in the place of articulation of dentals, labiovelars, and velars before **y*. In such cases the forms with **-yos-* and **-yon-* may be taken as more representative of the earliest situation.

4.8.1. Some Light Zero-grade Sequences

In many comparatives in this class we find a zero-grade root, in close agreement with the root vocalism of the corresponding *u*-stem adjective. In most instances these roots would have constituted light sequences from the point of view of Sievers’ Law at every stage in their history.

It seems most likely that we have the reflex of a syllabic nasal in the root of comparative βάσσων 'deeper' ← *bnt^h-yos-, next to the *u*-stem βαθύς, while the *s*-stem neuter βένθος seems to show the corresponding full grade. There has been a good deal of debate about the origin of this root; if we thought that there was a connection with fem. βῆσσα 'glen', then we would have to explain βένθος as analogical (see Chantraine 1999:155–6 with bibliography).²¹ However, Meissner (2006: 65–7) argues convincingly that βένθος shows a more archaic distribution than the corresponding zero-grade βάθος, and so it would be very difficult to argue that βένθος was built analogically.²² It has been suggested that we might compare Ved. *gambhīrā-/gabhīrā-* 'deep' < *g^wemb^h-/*g^wmb^h-. Such an etymology is not at all certain, and would involve accepting a Greek dissimilation *g^wmb^h- to βαθύς (rather than the expected *bap^hús; see EWAia I 464–5). Furthermore, it would be inconsistent to simultaneously claim that the same Sanskrit form was cognate with βάπτω 'dip'. Whatever the Indo-European connections may be, the internal Greek evidence is reasonably clear, and we can use the evidence of βάσσων in our enquiry.

The origin of βράσσων 'shorter' (Il.10.226) ← *mrǵ^h-yos- is considerably clearer, since it stands beside βραχύς (cf. Lesb. βρόχεα) < *mrǵ^hu-, a well-attested Indo-European adjective; cf. Av. *mərəzu-* 'short', Ved. *muhu-* (a Prakritism with *u* for *r*), OHG *murg(i)* 'short', Lat. *brevīs* < *mreǵ^hw-i-, etc. (see Lamberterie 1990: 156–63).²³

It is less clear to what extent we can make use of γλῦσσων (only in Xenophanes). On the face of it, it seems that we should reconstruct *gluk-yos- (cf. γλυκύς 'sweet').²⁴ However, we find a form γλυκίων already in Homer. If the respective dates of attestation truly reflect the relative dates of formation, then this would imply that γλῦσσων is an analogical formation that never involved *y. Of course, there is no guarantee that γλῦσσων is not, in fact, an archaism. But in view of the lack of certainty, we cannot legitimately use γλῦσσων or γλυκίων to determine the original distribution of semivowels.

²¹ Lamberterie (1990:136–44) argues that we need not choose between a connection between βῆσσα or βένθος, but that we can suppose an inherited system of suffix substitution which allows both forms to be cognate. However, even under such a scenario, the question of the historical identity of the root vowel in βαθύς and βάσσων still arises. Lamberterie opts for a syllabic nasal, citing the closer language-internal association with βένθος.

²² The connection with βένθος is the only comparison allowed for by Beekes (2010:191, 212–13 s.v. βῆσσα).

²³ The grammarians seemed to think that βράσσων could represent the comparative not only of βραχύς, but also of βραδύς 'slow': 'βράσσων, ὁ βραδύς καὶ ὁ βραχύς. ἐκάτερον σημαίνει' (EM 211.33–4); cf. 'βράσσων βραδύτερον' (Hsch.), and see Seiler (1950:43, 56). However, this is surely mistaken, since we would expect to find a comparative *βράζων to βραδύς, given that the root ends in *d. Such a relationship would only be possible if a secondary suffix -σσων spread even to forms where it was phonologically unexpected. This is not in any way impossible, but a seemingly unnecessary hypothesis in this particular case, given that βράσσων is a hapax that is adequately explained as a comparative of βραχύς in its only attestation.

²⁴ The full-grade form of this root might be seen in ἀγλυκῆς 'not sweet' (Epich.). It seems tempting to compare Lat. *dulcis*, but the only obvious way to do so would be to reconstruct an original word-initial cluster *dl-, i.e. *dlukus. We might find a measure of support for such an assumption in Myc. *de-re-u-ko*, if this represents [dleukos] (see Beekes 2010:277–8).

There are only a very few early instances of βραδίων, the primary comparative of βραδύς ‘slow’ (e.g. Hes.Op.528); it seems to have given way to the -τερος comparatives at an early date.²⁵ The base adjective may be cognate with Lith. *gurdūs* ‘slow’, in which case we could reconstruct Indo-European **gʷrdu-*.

The hapax θρασίων ‘bolder’ (Alcm.) stands beside the *u*-stem θρασύς; cf. the full-grade root in the Aeolic *s*-stem θέρσος.²⁶ This root finds a parallel in Ved. *dhṛs-*, Goth. *ga-dars-* ‘dare’, etc., and we may reconstruct **dʰers-/dʰrs-*. The survival of intervocalic **s* in the *u*-stem and in the comparative may be due to influence from the full-grade *s*-stem forms where the *s* in the root was not intervocalic, or alternatively indicate that prevocalic **s* was not lost after **r* (see §3.8.2). An analogical origin for θρασίων is a real possibility: if a form **dʰrs-yōn* had ever existed, it would probably have yielded **tʰrasyōn* (given the tendency of the root shape of comparatives to match that of the corresponding *u*-stem adjective), which in turn would yield **tʰraiōn*, a form which would have been unlikely to survive for very long as a comparative of θρασύς (see Seiler 1950:55–6). Clearly θρασίων is intrinsically more transparent. But we have no evidence that this is actually what happened. In any event the value of the evidence of this form is limited by all these uncertainties.

The vocalism of πάσσων ‘thicker’ is identical to that of παχύς and may reflect a zero-grade root with a syllabic nasal, i.e. **pnkʰ-yos-*. However, it is uncertain whether we should compare the Vedic full-grade comparative *baṃhīyas-*, *bahū-* < **bʰngʰ-*, or Lat. *pinguis* with an original initial **p* (see Lamberterie 1990:99–101; Seiler 1950:40–1). If all of these are cognate, then we would have to suppose that the Latin form was somehow remodelled, since otherwise we should expect initial **f* in Latin.²⁷ Kloekhorst (2008:625) argues that all these could be related to Hitt. *panku-* ‘entire, complete’ < **dʰbʰngʰ-(e)u-*.²⁸ In any event, if we at least accept the Sanskrit comparison and assume a Proto-Greek form with an initial aspirated stop **pʰakʰ-yos-*, then the outcome is nevertheless unexpected, since Grassmann’s Law should not have applied when **y* followed the second aspirated stop; cf. θάσσων ← **tʰakʰ-yos-*. So we should rather have expected an outcome **pʰassōn*. This shows that either this comparative was created after Grassmann’s Law applied, or more likely that it was remodelled to match the anlaut of παχύς or superlative πάχιστος after Grassmann’s Law applied. There is no reason to suppose that this remodelling of the anlaut would have affected the comparative suffix itself in any way. Of course, if the only cognate form turned out to be Lat. *pinguis*, then no such remodelling needs to have occurred. In either event, it seems probable that we can take the evidence for the suffix of this form at face value.

²⁵ On the idea of some Greek grammarians that there was also a corresponding comparative βράσσων, see above n. 23.

²⁶ Other dialects show zero-grade roots in the *s*-stem forms; cf. θάρσος, Att. θάρρος, and θράσος.

²⁷ Lamberterie (1990:95–6) points out the similarities in usage of Latin *pinguis* and παχύς, arguing that in spite of the formal difficulties the comparison should be maintained.

²⁸ He reconstructs the initial **dʰ* to explain GAv. *dabqzah-*.

4.8.2. Heavy Zero-grade Sequences?

4.8.2.1. *θάσσω* and *ἐλάσσω*

Not all of the evidence from this category is so straightforward to use. Perpillou (1974) cites *θάσσω* 'quicker' and *ἐλάσσω* 'weaker' as support for a Sievers' Law distribution, since they clearly involve a suffix with *γ, and the corresponding positive adjectives *ταχύς* and *ἐλαχύς* have short root vowels. However, there is a certain amount of evidence for long vowels in these forms in the grammatical tradition, going back to Herodian, and also in the accentuation of neuter singular forms, e.g. *θησσαν*, though, of course, the tradition of accentuation is not independent of Herodian.

Herodian makes an explicit reference to the vowel length:

πᾶν εἰς σσων λήγον συγκριτικόν, εἰ ἔχει δίχρονον ἐν τῇ πρὸ τέλους συλλαβῇ, συνεσταλμένον αὐτὸ ἔχει, πάσσω, μάσσω, βράσσω, γλύσσω. σεσημεῖται τὸ θάσσω καὶ ἐλάσσω ἐκτείνοντα τὸ δίχρονον. (Hdn., περὶ διχρόνων 13.11–13 = Hermann, *Regulae de Prosodia* 439.31–440.2 = [Draco] 32.21–5, s.v. γλύσσω)

Every comparative ending in -σσων, if it has a length-ambiguous vowel in its penultimate syllable, has this vowel short: *πάσσω*, *μάσσω*, *βράσσω*, *γλύσσω*. The words *θάσσω* and *ἐλάσσω* are exceptions, having their length-ambiguous vowels long.

This seems significant, because if *θάσσω* and *ἐλάσσω* really had long vowels, then they could not be considered straightforward examples of a Sievers' Law distribution, but strong counterexamples instead.

Ionic *θάσσω* and Attic *θάττω* are attested widely in Attic, Homer, Hippocrates, and Herodotus. They lie beside the positive adjective *ταχύς*, with a short root vocalism. The etymology is far from established.²⁹ However, two things are immediately obvious. The positive adjective exhibits the effects of a Grassmann's Law dissimilation of aspirates in contrast to the comparative, which preserves an old root-initial aspirate; the addition of the *-yos- suffix deaspirated the root-final consonant at an earlier stage, so *θάσσω* must have been formed before the operation of Grassmann's Law. Secondly, an original Greek long **ā* should have become long *ē* in Attic and Ionic, so one has to assume that if there is a long *ā* vowel, it is secondary in some way, the result of either a compensatory lengthening or an analogical process.

In many dialects a long *ā* vowel could have represented the full-grade form of a root containing a second laryngeal, i.e. **d^heH₂g^h-yos-* > **t^hāk^h-yos-*, while the short vowel of the positive would reflect the zero-grade **d^hH₂g^h-u-*. Such an origin might make this root cognate with the one found in the Eretrian personal name *Τήχιππος* (see Bechtel 1921–4:3, 126; Seiler 1950:39). However, it is difficult to see why the long **ā* would have been preserved. Seiler (1950:40) argued that there was hybridization between the root vowel length of the original comparative form **t^hēssōn* and the vowel quality of the positive *ταχύς*. But this does not strike a particularly convincing note: we have no parallels for such a process aside from the comparative forms in question, and if a strong formal link between positive and comparative was felt, it is unclear why the anlaut remained unaffected (contrast

²⁹ For a range of possibilities, see Lamberterie (1990:584–90).

πάσσων, where the root-initial consonant may have been modelled on the positive adjective, under a certain analysis).

A seemingly more promising alternative finds the origin of the long $\bar{a}$ in a compensatory lengthening. Lith. *danginti-s* ‘set off somewhere’ has been suggested as a cognate. Perhaps we should reconstruct $*d^h ang^h\text{-}yos\text{-}$ > $\vartheta\acute{\alpha}\sigma\sigma\omega\nu$ beside $*d^h ng^h\text{-}u\text{-}$ > $\tau\acute{\alpha}\chi\upsilon\varsigma$. Again, this seems to require a certain amount of analogical reshaping in order to explain the *a*-vocalism of $*d^h ang^h\text{-}$, in what would seem to continue a full-grade formation $*d^h eng^h\text{-}yos\text{-}$. In other comparative forms where we believe there to have been a nasal in the root we do not find a mixture of zero-grade and full-grade characteristics, but simply a reflex of the syllabic nasal. For example, in $\pi\acute{\alpha}\sigma\sigma\omega\nu$ we saw that the root vowel derives simply from $*n$ and not a sequence $*an$. Even in $\beta\acute{\alpha}\sigma\sigma\omega\nu$, which is built from a root whose full-grade form actually survives ($\beta\acute{\epsilon}\nu\theta\omicron\varsigma$), we do not see the creation of a hybrid root shape such as $*banth\text{-}yos\text{-}$. It is unclear why $\vartheta\acute{\alpha}\sigma\sigma\omega\nu$ should behave so differently.

In any case, there is a phonological problem with this proposed development. Insofar as the lengthening of the root vowel is a phonological process, the putative form $*t^h ank^h\text{-}yos\text{-}$ would have to have achieved a configuration which would feed the second compensatory lengthening, i.e. a $*\text{-}Vns\text{-}$ sequence. The only independent parallels we have for a *nasal* + *stop* + $*y$ sequence of this kind involve a dental stop, e.g. $*pant\text{-}ya$, which develops with only a single $-\sigma$ to $\pi\acute{\alpha}\sigma\alpha$ ‘all’ in both Attic and Ionic (see Seiler 1950:45; Lejeune 1972:129ff.). The use of this parallel is made difficult by the fact that dentals and velars were not treated in the same way in all palatalization processes. We can at least note that $*pant\text{-}ya$ has a heteromorphemic $*t\text{-}y$ cluster, which in other respects behaved in a parallel fashion to velar + $*y$ clusters. In any event, if velar stops behaved in the same way as the sequence in $\pi\acute{\alpha}\sigma\alpha$, then we might have expected $*t^h ank^h\text{-}yos\text{-}$ to be continued as $*t^h \acute{a}sd\bar{o}n$ with single $*-\sigma$ rather than $\vartheta\acute{\alpha}\sigma\sigma\omega\nu$. On the other hand, if velars behaved differently from dentals, as in some other contexts, then it is not clear why we do not find Att. $*t^h antt\bar{o}n$ or $*t^h ant\bar{o}n$, with the characteristic dental reflex of a $*-k^h y\text{-}$ sequence. Furthermore, even in dialects like Ionic, where $*-k^h y\text{-}$ yielded a sibilant, it seems intuitively likely that $*-Vnk^h y\text{-}$ would have yielded single $*-s\text{-}$ rather than a geminate, since it is probable that it would have been syllabified as $*-Vn.k^h y\text{-}$ (if onsets were maximized), and we never find a geminate outcome in a syllable onset; cf. word-initial $*k^{(h)} y\text{-}$ sequences which yield simplex $\sigma\text{-}$ or $\tau\text{-}$ in all dialects.

Many of the same phonological and morphological difficulties apply to $\acute{\epsilon}\lambda\acute{\alpha}\sigma\sigma\omega\nu$ ‘weaker’. The Greek forms must go back to a root containing a nasal $*H_1 leng^{wh}/*H_1 lng^{wh}\text{-}$; cf. $\acute{\epsilon}\lambda\alpha\chi\upsilon\varsigma$, $\acute{\epsilon}\lambda\alpha\varphi\rho\acute{o}\varsigma$ ‘light, dexterous, little’, Ved. *laghú-*, YAv. *rəuuī-* < $*raγī-$, and comparative *rəñjiiō* with full-grade vocalism – cf. Lith. *leñgvas*.³⁰ Even if we assumed an interference between full-grade and zero-grade root shapes, this would still not fully explain the outcome Ion. $\acute{\epsilon}\lambda\acute{\alpha}\sigma\sigma\omega\nu$ /Att. $\acute{\epsilon}\lambda\acute{\alpha}\tau\tau\omega\nu$ for the same reasons that an intermediate form $*t^h ank^h\text{-}yos\text{-}$ cannot explain $\vartheta\acute{\alpha}\sigma\sigma\omega\nu$ / $\vartheta\acute{\alpha}\tau\tau\omega\nu$.

Since there is no prospect of deriving this long $\bar{a}$ -vocalism by regular sound change, we are left with the possibility of an analogical development. It is well

³⁰ For a full discussion of the cognates, see Lamberterie (1990:183–6). A collateral root without the nasal can be found in Lat. *levis* ‘light’ and apparently in OIr. comparative *laigiu* ‘smaller, worse’ < *lag-yōs*, though the Celtic *a*-vocalism is difficult to explain; see Schrijver (1995:305–6).

known that in Attic there was a widespread process of lengthening in the primary comparatives. For example, while Ionic has κρέσσων and μέζων, Attic has κρείττων and μείζων.³¹ The most likely explanation is that there was an analogical lengthening based on comparatives built from resonant final roots (Kurylowicz 1956:275–6).³² However, Herodian's discussion of the root vowel length of these forms does not mention Attic θάττων: he actually cites θάσσω, which one might assume to represent the state of affairs in Ionic or Homeric Greek, where lengthening is not expected. It is interesting to note that Herodian classifies as having a long root vowel precisely those comparatives which also have corresponding forms in Attic, i.e. θάττων and ἐλάττων. Everything that does not occur in Attic (i.e. πάσσω, μάσσω, βράσσω, and γλύσσω) is said to have a short vowel (as Wackernagel 1953:1181–2 pointed out). Herodian seems to be reporting a blend of Attic root vowel quantities and the Ionic outcomes of palatalization. Another context in which we often find the characteristic features of both Attic and Ionic mingled is the Koiné, for although the Koiné is substantially based on Attic, we typically find forms with -σσ- in place of Attic -ττ-. It seems plausible that Herodian might be accurately reporting a combination of linguistic features characteristic of the Koiné rather than Ionic or Homer.³³ In other words, Attic θάττων and ἐλάττων could have undergone the normal Attic analogical lengthening of the root vowel, and made their way into the Koiné with -σσ- substituted for -ττ-; certainly θάσσω and ἐλάσσω are attested in Koiné texts, though we cannot know the vowel length. A parallel to the proposed development can be found in the Koiné comparative κρείσσω, which shows the root vocalism of Attic κρείττων and the double -σσ- of Ionic κρέσσω; similarly Koiné μείζων shows the root vocalism of Attic.³⁴

If this is accepted, then we may take θάσσω as originally having a short root vowel, just like ταχύς. Of course, this does not help us to decide which etymology to accept: **tʰakʰ-yos-* < **dʰH₂gʰ-yos-* or **dʰh₂gʰ-yos-*, the link with the personal name Τήχιππος, or the comparison with Lithuanian *danginti-s* would be phonologically possible. However, it is clear that ἐλάσσω can go back to **H₁lngʰ-yos-* without any difficulty.

4.8.2.2. ᾶσσω

A problem of a rather different nature is presented by ᾶσσω 'near'—a form found in poetry and Ionic prose, e.g. Hom., Hdt., Ar., S.³⁵ In this case we would predict a heavy sequence in the root on etymological grounds. It seems to exhibit -σσ- as a

³¹ While there are lengthened Homeric examples such as μέζων, these are normally considered to be Atticizing textual contaminations, since elsewhere Ionic exhibits forms without lengthening, e.g. μέζων.

³² For the idea that this lengthening was a uniquely Attic phonological change, see Lagercrantz (1898:36).

³³ I am grateful to Dr Philomen Probert for this suggestion. I had previously assumed that the combination of Attic vowel length and Ionic -σσ- was an artefact of the grammatical tradition.

³⁴ For more detailed discussion of the use we can make of Herodianic evidence for vowel length in these forms, see Barber (forthcoming).

³⁵ Following Seiler (1950:44ff.) and Lamberterie (1990:265–70), I classify this with the comparatives that lie beside *u*-stem adjectives, for reasons which will become apparent in the following discussion.

result of palatalization. From this we infer that **-yos-* was involved and not **-iyos-*. Since the etymology linking ἄσσον to ἄγγι ‘near’ is undeniable, the seemingly obvious inference is that we may reconstruct **ank^h-yos-* for a certain stage in the history of Greek, a form which clearly violates Sievers’ Law.

However, there are two complicating factors. Firstly, there is a good possibility that ἄσσον itself, in the form we have it, is not terribly old; the best evidence for the original form of this comparative is probably of a somewhat indirect nature. Secondly, we need to assess the age of this heavy sequence, which involves comparison with cognate forms and questions of relative chronology.

We have already noted that it is difficult to understand the development of long *ā* and double *-σσ-* from a sequence containing a nasal, since an almost parallel sequence of *nasal + stop + *γ* in **pant-ya* develops with only a single *-σ-* to πᾶσα ‘all’, and even if dentals and velars behaved in a non-parallel fashion, we might still reasonably expect a single *-σ-* outcome if we assume that onsets were maximized and that a sequence **an.k^h-yos-* would probably have given **anson* > **āson* (see the discussion of ὁάσσων in §4.8.2.1).

There may be some evidence that this is actually what happened. We find an Elean form ἄσιστα (Buck 1955:262–3, no. 65), a superlative with single *-σ-*, which seems to have been formed analogically from the predicted form **ason* < **ank^h-yon* (see Seiler 1950:45–6; Peters 1980:288). Although the orthographical representation of geminates in inscriptions is not particularly reliable at an early stage, and geminates in Elean are a particularly fraught issue (see Minon 2000), the single *-σ-* in this case is probably a real linguistic feature; there are no other potential examples of geminates being written single in this inscription, and it is rather late for single writing of geminates (mid-fourth century). We also find ἄσιστα in Tegea (IG 5(2) 159, B 17), though the inscription in question does not have examples of other etymological geminates for comparison. These forms stand in contrast to ἄσισιστα in A.Fr.66 (Radt).³⁶

If ἄσιστα can be taken as proxy evidence for **āson*, then this would reinforce the surprising conclusion that ἄσσον itself was probably formed, or re-formed, analogically in a period following the second compensatory lengthening. This does not sit easily with the observation that ἄσσον seems to be morphologically isolated, with no surviving positive adjective, and that at the earliest stages of attestation we find hyper-characterized forms such as Hom. ἄσσοτέρω. These are seemingly the properties of a fossilized, morphologically opaque form.

There may be a relatively simple explanation for both the origin of ἄσσον and its apparently rapid fossilization. It seems more or less certain that Greek once had

We find both ἄσσον and ἄσσον in our texts, e.g. the Venetus A manuscript of the Iliad consistently has ἄσσον, while in others the reading alternates (see Seiler 1950:45). I think Seiler’s suggestion that this reflects an alternation of length is unlikely. As we saw, all but two comparatives in *-σσων* were considered to have a short vowel by Herodian (περὶ διχρόνων 13.11–13). The consistent appearance of ἄσσον in Venetus A might be connected with this perception. It would be very difficult to argue that the acute accent and possibly short vowel represent an original state of affairs, given the original shape of this root (see further in this section). Moreover, the length of ἄσσον certainly cannot be ascribed to Attic influence, since there is no Attic form **ātton*.

³⁶ We cannot realistically use the instances of ἄσσον in Attic (rather than the expected **a(n)ttōn*) as indirect evidence for **āson* in this dialect, since the only examples in and before the classical period are in poetry; the influence of epic seems highly likely.

a *u*-stem adjective built from this same root. Furthermore, in Greek, it may only have been lost a short while before Homer. Once the *u*-stem adjective was lost, the comparative was isolated and effectively became a positive, unanalysed form from which other analogical formations could be built.

The comparative evidence for a *u*-stem from this root is compelling: we find Ved. *amhú-*, OCS *qzъkъ*, Goth. *aggwus*, OIr. *cumung*, and probably Arm. *anjuk* (see Lamberterie 1990:265–70), in spite of the final *k*.³⁷ There is also Greek evidence: we find in Homer a form ἐπασσύτερος ‘one upon another’, whose explanation is made more straightforward if we invoke the influence of an original *u*-stem adjective. Risch (1974:95) argued that ἐπασσύτερος results from contamination between ἄσσότερος and **ank^huteros*, a comparative form which presupposes **ank^hus* (perhaps on a model such as εὐρύτερος ‘broader’ from εὐρύς).³⁸ Such a process suggests that a *u*-stem form persisted until quite a late stage, since it interacts with the spreading *-τερος* suffix. Since so many *u*-stem forms stand next to comparatives in *-σσων/-σσον*, this might have provided a model for remaking **āson* as ἄσσον.³⁹ Given that ἄσσον itself is probably an innovation, we cannot use its evidence to establish anything about the original distribution of **i* and **y*.

If ἄσιστα truly presupposes **āson*, then this still needs to be taken into account. It is worth noting that it is not entirely certain that a stem ἄσ- could not have been abstracted secondarily from ἄσσον. There is no proportional analogy which could yield such a result, but plenty of examples of analogy are not proportional, and the possibility is difficult to rule out. In such a case the evidence of both ἄσσον and ἄσιστα would be unusable for our purposes. However, if we accept this as evidence for **āson* ← **ank^h-yos-*, then it clearly bears on the validity and antiquity of Sievers' Law in this category.

It is pretty clear on morphological grounds that there must have been a root-initial laryngeal. Ved. *amhú-* must be based on a full-grade root, and if we reconstructed a root without a laryngeal, **mg^h-*, then we would expect the

³⁷ Lamberterie *loc. cit.* also adduces evidence from the form ἀγχήν ‘throat, neck’ and Armenian *awjik* ‘collar, hem’, which may point to a **wen-* derivative of this root in Indo-European, seemingly an enlargement of the *u*-stem adjective. However, this evidence relies on accepting phonological developments which are far from certain: for a summary of the evidence, see Clackson (1994:107–9), who is sceptical of this proposal.

³⁸ For some alternative explanations of ἐπασσύτερος, see Frisk (1973:532) and Beekes (2010:437). In particular, one might note the etymology that derives this from the verbal root **kyew-* ‘set in motion’ (> σεύω, cf. Hom. ἐ-σσύμενος, Skt *cyávate*, etc.). It is supposed that a *-τερος* comparative was built from a deverbal adverb **ep-an-ssu* (itself from **ep-an-sseuō*). However, **ep-an-kyew-* might be expected to yield a form with single rather than double sigma (see §4.8.2.1).

³⁹ The exact mechanism is difficult to know. Various problems arise if we assume an analogical proportion such as *παχύς* : *πάσσον* :: **ank^hus* : *X*, where *X* = **ansson*. This involves a problematical configuration with a post-consonantal geminate. Insofar as we deemed it unlikely that **-k^(h)y-* would yield geminate **-ss-* in a syllable onset, this would be difficult to reconcile with the creation of such a configuration by analogy. But the question might turn on the relative chronology of these developments. Obviously, under this analysis **ansson* only arose after the second compensatory lengthening, and it is conceivable that the lack of any **-nss-* or **-ns-* configurations in the surface phonology of the language at that time amounted to a synchronic restriction. A simplification of the geminate, i.e. **-nss-* → **-ns-*, would not have produced a result which was any more acceptable, so the coda nasal was dropped instead (its mora being reassigned to the root vowel), yielding ἄσσον. Alternatively, instead of setting up a proportional analogy, it might be possible to suppose that the geminate simply replaced the original single **-s-* because so many parallel comparatives have *-σσ-*.

full-grade form in Vedic to be **mag^h-u-* < **meg^h-u-*.⁴⁰ Therefore, if the Greek comparative is sufficiently old, we should either reconstruct **H₂mg^h-yos-*, which would have yielded **ank^h-yos-* by Rix's Law (see Mayrhofer 1986:129–31), or full-grade **H₂emg^h-yos-*, which would also yield **ank^h-yos-*. If a comparative with a full-grade root of precisely this configuration existed, then it would have violated Sievers' Law under every formulation proposed so far, in Indo-European and at every stage thereafter. On the other hand, the zero-grade form would have conformed with Sievers' Law in the first instance.

Insofar as there may well have been paradigmatic ablaut alternation at a very early stage, it is conceivable that both forms of the root could have been inherited into Greek, and we can only guess at any potential paradigmatic semivowel syllabicity alternations. It is clear that, other than *κρέσσων*, all the comparatives beside *u*-stems show a root vocalism which is the same as that of the corresponding **u*-stem, and all the relevant *u*-stems have generalized a zero-grade root, save for *ῥῑδύς* (< **sweH₂d-u-*) and *ἐγγύων* 'nearer', whose etymology is unknown. Therefore, in the absence of any other evidence, our default interpretation should be that the putative **āson* ultimately reflects **H₂mg^h-yos-*.

If all of these assumptions hold, then we would have to conclude that, if Greek inherited Sievers' Law at all, it must have ceased to function by the time Rix's Law took place. However, certainty on this point is impossible to achieve, given the many possible interpretations of the evidence offered by *ἄσιστα*.

4.8.3. Comparatives with Full-grade Roots

Three comparatives in this class show full-grade roots. We find *κρέσσων* 'stronger' (Ion., Pi.) ← **kret-yos-* beside the *u*-stem *κρατύς*; cf. Ved. *krātuḥ*, Av. *xratu-* 'magical power, will', and the *s*-stem noun *κράτος* 'strength, power'—cf. ep. and Dor. *κάρτος* and Aeol. *κρέτος*. It is clear that Att. *κρείττων* and ep. *κρείσσω* both reflect the result of a secondary purely Attic lengthening, which influenced the transmission of epic forms. There are also forms of this comparative with a zero-grade root in Cret. *κάρτων*, Dor. *κάρρων* (< **karsōn*), both from **krt-yōn*.

Similarly, solid Indo-European origins can be found for the root in *ῥῑδύων* 'sweeter' ← **sweH₂d-iyos-* beside *ῥῑδύς*; cf. Ved. *svādúḥ*, Lat. *suāvis*, etc. The zero grade of this root may be found in Ved. *sūdáyati* 'make something tasty', for example.⁴¹

No convincing etymology can be found for *ἐγγύων* 'nearer' ← **egg-iyos-* and the corresponding positive adjective *ἐγγύς*.

4.8.4. Later Remodelling

Not all examples of the primary comparatives are equally ancient; it seems that for some time this category retained some productivity even after the loss of **y*. We

⁴⁰ The Hittite evidence may confirm this analysis, since we find *ḫamank-* / *ḫame/ink-* 'tie, betroth' with a nasal infix root (see Kloekhorst 2008:278–9).

⁴¹ For a discussion of ablaut in this root, and some complications in the evidence, see Lamberterie (1990:485–91).

have already suggested that several new comparatives in *-ων* were created, such as *παχίων* beside the relatively opaque *πάσσων*. Not only *-ων* spread: it was possible to create new comparatives with a suffix *-ων*—we find Cretan *πρείγων* ‘older’ next to *πρεΐγυς* ($\approx$ *πρεσβύς*),⁴² which fails to show any sign of the suffix **-γος-* or **-ιγος-*. It is perhaps to be explained as being built from its superlative *πρείγιςτος*, on the model of *κάρτιστος* : *καρτ(τ)ων* (see Seiler 1950:58–61). It looks as if the primary comparative had to continue to fulfil the functions of a comparative formation for some period after the loss of **γ* and before the rise of *-τερος*.

4.9. COMPARATIVES BESIDE *-ρο-* ADJECTIVES

The comparatives beside **-ro-* adjectives are relatively few in number and show no sign of being a productive category. We find *κῡδίων* ‘more glorious’ beside *κῡδρός*, *μάσσων* ‘longer’ beside *μακρός*, *αἰσχίον* ‘more shameful’ beside *αἰσχρός*, and *ἐχθίων* ‘more hateful’ beside *ἐχθρός*. All these forms also stand beside *s*-stem neuter nouns *κῡδος*, *μήχος*, *αἰσχος*, and *ἐχθος*. The root vocalism of some forms, such as *αἰσχίον* and *ἐχθίων*, agrees with that of both the corresponding *-ρο-* adjective and the *s*-stem noun. Possibly this agreement results from analogy, but no interesting chronological conclusions can be drawn from this fact in itself.

4.9.1. *κῡδίων*

The **-ro-* adjective *κῡδρός* ‘renowned’ seems to be ancient and is likely to have been inherited. It shows the archaic properties of a Caland suffix in that it alternates with an **-i-* form in composition, e.g. *κῡδι-άνειρα* ‘bringing renown to men’, and stands beside the comparative *κῡδίων* and *s*-stem *κῡδος*. Direct Indo-European comparisons are not straightforward: Ved. *sūdrá-* ‘members of the fourth caste’ may be cognate, but the semantic match is hardly conclusive. The *s*-stem noun finds a parallel in OCS *čudo* (genitive *-ese*) ‘miracle’ (cf. SCr. *čudo* with acute accent), and this has been taken to indicate a lengthened vocalism (**kēwd-es-*), potentially due to a laryngeal. A zero-grade form **kuHd-* would unproblematically yield the Greek root **kūd-*. However, Beekes (2010:796–7) points out that the Slavic acute accentuation might be due to Winter’s Law. Hajnal (1988:80 n. 76) suggests that we ought to reconstruct an alternation **-ew-/*-u-* in this root rather than **-ēw-/*-ū-*, and Meier-Brügger (1992:269) argues that the long root vowel in Greek could result from a form of secondary ablaut alternation *-ū-/*-ū-*, whereby a long vowel was substituted for a diphthong in the inherited alternation **-ew-/*-u-*. For example, if *κῡδρός* contained a short rather than a long root vowel (we cannot tell), then a contrast such as *κῡδάλιμος* / *κῡδρός* could have replaced an ancient alternation **kewdalimos* / *κῡδρός*; cf. *λευγαλέος* / *λῡγρός* ‘wretched’, *πευκάλιμος* / *πῡκνός* ‘compact’. The obvious parallel for the formation of such secondary ablaut would be the reshaping of the suffixal ablaut patterns of the **-nu-* verbs in Greek; **(H₃)r-new-mi* / **(H₃)r-nu-men* ‘arise’ (cf. Ved.

⁴² For a discussion of much disputed etymological possibilities, see Chantraine (1999:937), Beekes (2010:1231–2), and especially Lamberterie (1990:926–35) with bibliography.

r̥noti and perhaps Hitt. *ar-nu-uz-zi*) develops an alternation of length in ὄρ-νῦ-μι / ὄρ-νῦ-μεν. Under this analysis the long vowel of χῦδος and χῦδίων would reflect full-grade forms **kewd-e/os-* and **kewd-iyos-*.⁴³

This account is rather problematical. The creation of secondary ablaut in the nasal presents seems to have been made possible by the availability of vowel length alternations in other athematic present formations such as δίδωμι or τίθημι. An equivalent model among nominals is far from obvious. Secondly, the replacement of an **ew* : **ū* alternation with an **ū* : **ū̄* alternation would surely rely on having examples of the short alternant **ū̄*. However, it is hard to prove the existence of such forms; while χυδρός could be an example, we do not have sure evidence about the length of this vowel, and it could equally well be long.

In any event, the relationship between χυδρός and χῦδίων gives every appearance of being ancient, being built on an unproductive pattern of derivation. Under most analyses it does not matter for our narrow purposes whether the long vowel of the comparative is an indirect reflex of an inherited full-grade form or whether it goes back to an original long vowel, or vowel plus laryngeal sequence; the sequence would have been heavy for Sievers' Law and the disyllabic version of the suffix is reflected in Greek. The origin of the root only makes a difference to the weight of the preceding sequence, if we believe in Schindler's hypothesis that a **-Hd-* cluster would not have created a heavy sequence for Sievers' Law. This hypothesis can be evaluated once all the evidence has been collected.

4.9.2. μᾶσσον

The adjective μακρός 'long, great, high' is clearly inherited from Indo-European; cf. Lat. *macer* 'meager, thin', OHG *magar*, ON *magr* 'meager', and with the same root cf. Hitt. *mak-l-ant-* 'thin'. The primary comparative form μᾶσσων 'longer' (Hom., Pi., A., X., etc.) shows the reflex of the *-yos- suffix.

The length of the root vowel presents a familiar problem. A long vowel seems to be suggested by the accent of the neut. sg. μᾶσσον.⁴⁴ But it is fairly clear that the long *ā* cannot be very old, given that it is found in Ionic texts, and an original long **ā* would have been replaced by *ē*. In fact, this root regularly exhibits a genuine *old* long vowel in e.g. μῆκος < **meH₂k̂-os* and μήκιστος < **meH₂k̂-istos*.⁴⁵ This long vowel, which is attributable to the effects of a second laryngeal in the root, clearly cannot be responsible for the apparently long *ā* of μᾶσσον.

We cannot explain the accent and apparent length of this vowel in the same way as we did for θᾶσσον or ἐλᾶσσον; there is no Attic form *μάττων or *μᾶττων where an analogical root vowel lengthening would be understandable and even

⁴³ We should note that if this were the case, then χῦδίων would be a precious second example (additional to χρέσσων/κρατύς) of an ablaut contrast between the comparative and its positive adjective in Greek.

⁴⁴ This circumflex form is found in A.Pr.629, Call.*Hec.*fr.18, 8–9 (Hollis = Suid. iii.334.8 lemma = μᾶσσον), possibly also in Choerilus (Epic Samius Fragmenta epica fr.27, 1), and Diggle offers it as a conjecture in a fragment of E.*Cret.*(Kannicht 5.1 fr.472e.l.44). In the Homeric example (Od.8.203) there is MS disagreement.

⁴⁵ Iranian shows equivalent forms: Av. *māsah-* 'length, greatness' and superlative *masišta-*, OP *maθišta-*. However, the root vocalism has not been fully explained.

normal. Furthermore, $\mu\acute{\alpha}\sigma\sigma\omega\upsilon\varsigma$ is not found at all in the Koiné. However, it does seem likely that the accentuation of $\mu\tilde{\alpha}\sigma\sigma\omega\upsilon\varsigma$ followed that of $\vartheta\tilde{\alpha}\sigma\sigma\omega\upsilon\varsigma$, $\varepsilon\lambda\tilde{\alpha}\sigma\sigma\omega\upsilon\varsigma$, and $\tilde{\alpha}\sigma\sigma\omega\upsilon\varsigma$, being in effect an artefact of the textual tradition rather than a real linguistic feature. It seems pretty certain that we should suppose an original short vowel in $\mu\tilde{\alpha}\sigma\sigma\omega\upsilon\varsigma$, $-\omega\upsilon$. However, it is less clear that we would have expected this to have been derived directly from $*mH_2\acute{k}-yos-$; this would rely on a development $*NH_xC- > *N\tilde{V}_xC-$ in Greek, rather than a vocalization of the nasal and lengthening by laryngeal loss, which might have been more expected, i.e. $*N\grave{o}NH_xC- > *N\tilde{V}_xC-$.⁴⁶

4.9.3. αἰσχιών

Beside αἰσχροός we find the comparative αἰσχιών 'more shameful' (Hom. etc.). The traditional etymological association between αἰσχροός and Goth. *aiwiski* (with the same sense) seems impossible from a phonological point of view (see Lamberterie 1990:835). It seems much better to follow Lamberterie's (1990:835–40) hypothesis that αἰσχροός has the same root as αἰδομαι 'be ashamed, honour' (cf. Goth. *aistan* < $*ayd-ste/o-$). However, the consequence would be that αἰσχροός is ultimately derived from a verbal formation: a putative present stem $*aisk^h_e/o-$ < $*ayd-ske/o-$.⁴⁷ Since it is unlikely that the primary comparative would have formed as αἰσχιών until after $*aysk^h-$ came to be perceived as an unanalysable root, this example is probably not terribly ancient and so is of only secondary importance in the question of the original behaviour of $*i$ and $*y$.

4.9.4. ἐχθίων

We appear to see an absolutely regular Caland relationship between ἐχθίων 'more hateful', the adjective ἐχθροός, ἐχθρός the *s*-stem noun, etc., all built from a root $*ek^ht^h-$. However, it has been suggested that this relationship and indeed the root $*ek^ht^h-$ is secondary and of purely Greek origin. Under this account, only ἐχθροός was inherited, and originally it was not a $*-ro-$ formation, but was derived from the preposition $*eks$ with a suffix $*-tro-$, i.e. $*eks-tro-s > \acute{e}\chi\theta\rho\acute{o}\varsigma$. This suffix is seen as a variant of contrastive $*-tero-$, and the whole formation is supposed to be cognate with Lat. *exterus* 'outside' / *extra*, which is, in turn, morphologically parallel with *interus* / *intra*. From ἐχθροός a new root was extracted and an entirely innovated Caland system was created, possibly in the history of Greek, if the sound change $*-kst- > *-k^ht^h-$ was important in making the original morphological structure opaque. This idea provides a very tempting explanation of the semantics of ἐχθροός, originally 'the outsider', and it has gained some currency (see e.g.

⁴⁶ For support for such a development, cf. μέτρον 'measure' apparently from $*mH_1-tro-$ (see Beekes 1988: 22–45).

⁴⁷ The phonological development does not seem an unreasonable hypothesis given the similar treatment of other instances of $*s$ between obstruents; cf. ἐφθός < $*heps-to-$ (cf. ἔψω 'boil'); παίσχω < $*pat^h-ske/o-$. However, there are no exact parallels for this particular change.

Meissner 2006:48–9; Beekes 2010:488–9);⁴⁸ Lamberterie (1990:22–3) uses this case as a salutary example of the caution we should exercise before attributing antiquity to every group of forms showing Caland-like behaviour on a synchronic level.

However, it seems rather more likely that Lat. *extra* is not best explained by positing otherwise unsupported ablaut in the **-tero-* suffix, but rather by reconstructing **-tera* with subsequent regular syncope > **-tra*. Without this comparative support for a suffix **-tro-*, the etymology of ἐχθρός remains rather unclear, since there is, of course, no way in which **eks-tero-s* could give ἐχθρός in Greek. Nevertheless, given the uncertainty over the antiquity of this root, we should exercise great caution in using the evidence of ἐχθίω. There is no guarantee that it is old enough to reflect accurately the earliest behaviour of **i* and **y*.

4.10. COMPARATIVES BESIDE *s*-STEM NOUNS

There are a few primary comparatives that do not appear to have an ancient cognate positive adjective, but do stand next to *s*-stem nouns built from the same root: κέρδιον next to τὸ κέρδος, ἄλγιον next to τὸ ἄλγος, ῥίγιον next to τὸ ῥίγιος. This pattern of formation is commonly thought to reflect an ancient state of affairs (e.g. Chantraine 1961:112).⁴⁹

As we have observed, the Greek primary formation is in some ways ill-suited to the task of providing a comparative to an adjective; it is not formed from the adjectival stem, but from the root. This fact may point towards the view that the primary comparative used to be some kind of intensive formation rather than a comparative adjective in the first instance.⁵⁰

It seems that the history of the comparative in Greek can be characterized by a tendency to associate the comparative with its positive adjective more and more closely. This may be exemplified by the spread of the secondary suffix *-τερος* and the tendency towards agreement in the root vowel between primary comparatives and corresponding positive adjectives. In the former case, the comparative comes to bear an obvious relationship to its positive adjective, since it is formed from the same stem. In the latter, we may see an attempt to achieve a similar effect through levelling in the root vocalism. This being known, it would seem very odd if Greek proceeded to develop a series of primary comparatives next to nouns rather than adjectives. Therefore we must conclude that the comparatives beside *s*-stem nouns, without ancient positive adjectives, are an inherited and archaic type.

Some of the forms which belong to this category have a good Indo-European etymology and may be considered old. Others do not have an agreed etymology, yet these too must be considered ancient; it does not seem plausible that Greek

⁴⁸ Beekes (2010:433, 489) prefers to reconstruct the preposition as **eg^hs* rather than **eks*, in order to explain the aspirate in ἔσχατος ‘last, uttermost’.

⁴⁹ It should be noted that adjectives in *-αλεος* did in fact exist from these roots: κερδαλέος, ἀργαλέος (with dissimilation), and ῥιγαλέος (though this last is only found in a fragment of Empedocles). However, it seems relatively clear that this is not a particularly ancient suffix and that it is in the process of spreading. See Seiler (1950:84), Schwyzler (1953:484), and Risch (1974:104).

⁵⁰ See Szemerényi (1990:200–1) with literature.

created them at anything but the earliest period. We know that ῥίγιον 'more horrible' must go back to **srīg-iyos-* or **sriHg-iyos-*; cf. verbal ῥροῖγα 'shudder' and Lat. *frīgus*, *frīgeō*. It may be that κέρδιον 'more profitable' is connected with OIr. *cerd* (see Pokorny 1959:579). There are no external Indo-European comparisons for ἀλγίων 'more painful' (Hom. etc.) ← **alg-iyos-*; cf. ἄλγος (n.) 'pain, grief' (Hom. etc.). Sometimes ἀλέγω 'take care, heed' is compared, but the meaning is not that close, and this does not advance our understanding of the root structure very much.

Clearly, with such limited evidence, it is difficult to come to certain conclusions. However, this group certainly does seem to be archaic and can be taken as serious evidence. It conforms to the basic predictions of Sievers' Law, but, depending on whether we assume **srīg-iyos-* or **sriHg-iyos-*, there would be different implications for Schindler's view of the behaviour of obstruent clusters.

4.11. COMPARATIVES BESIDE ADVERBS IN -α

There is a small group of comparatives that stand beside adverbs in -α, e.g. ἥττων 'weaker' beside ἥχα 'slightly, softly' and μᾶλλον 'more, rather' beside μάλα. On the face of it, this group, as a whole, does not seem to be of great antiquity. Adverbial forms in -α are not generally considered to be an Indo-European type, but rather derive from a number of diverse origins (see e.g. Schwyzler 1953:622; Seiler 1950:63).

Seiler (1950:63–4) suggested that μέζων 'greater' is an inherited exponent of this category, standing beside μέγα. We may compare the Ved. n. *máhi*, from which we reconstruct **megH₂*; cf. Hitt. *mekk-* 'much, many', Arm. *mec* 'great', etc. The fact that μέζων goes back to **meg-yos-* indicates either that the laryngeal in **megH₂* was considered a suffix at the stage when **meg-yos-* was formed,⁵¹ or that Pinault's rule is valid, and **megH₂-yos-* lost the laryngeal regularly between a consonant and *y. If Pinault's rule were sufficiently ancient, then which solution we accept might not make a difference from the point of view of Sievers' Law.

We have comparative evidence for μᾶλλον 'more, rather' (beside μάλα 'very, quite'); cf. Lat. *melior* 'better' < **mel-yos-* (beside *multus* 'much' < **m(o)l-to-*). However, the root vocalism in Greek and Latin does not match. Osthoff and Brugmann (1910:52) argued that we should explain the vocalism of μᾶλλον by deriving it by analogy from μάλα: μάλιστα, just as ὑἄσσον stands beside τάχα and τάχιστα. But if this was the precise analogical model, then μᾶλλον must have been built before the complete loss of *y and possibly before the operation of Grassmann's Law, since this would most probably have rendered ὑἄσσον: τάχα: τάχιστα unsuitable as a model. However, it seems unnecessary to have an analogical proportion to explain why the quality of the root vocalism of μᾶλλον would come to match that of μάλα.

The accent shows that there has been a lengthening of the root vowel, just as we have seen in many other comparatives. As we have argued before, this marks out the vocalism as a comparatively recent innovation. We find μᾶλλον well attested

⁵¹ On the status of **-H₂* as a suffix, see Meissner (2006:62–3).

in Attic prose and in the Koiné. Therefore it seems likely that the root vowel was subject to the characteristic Attic root vowel lengthening and made its way into the Koiné, and thence into the grammatical tradition of accentuation.

Insofar as we reconstruct **māl-on* ← **m̥l-yos*, the example is not relevant to Sievers' Law, since the semivowel was effectively intervocalic at an earlier stage. However, if this was a direct replacement for a form with a full-grade root vocalism, as in Latin, and if only the root vocalism was remodelled, i.e. we posit **mel-yos* rather than **mel-iyos*, then the evidence might conceivably make a contribution. Unfortunately, none of this can truly be known. Furthermore, we cannot hope to second-guess the behaviour of such formations at a stage when paradigmatic ablaut was in operation in this category. On this basis, it seems wisest to leave this form aside.

If ῥισσων and Att. ῥιττων 'weaker' go back to **sēk-yos-*, *vel sim.* (cf. ῥιχα 'quiet, slow'), then we would have evidence of a clear counterexample to Sievers' Law. There may be comparative evidence for the root, if we can compare Lat. *sēgnis* 'slow' < **sēkni-*. However, a number of difficulties surround the interpretation of these forms. Given that comparatives beside such adverbs have no support from other Indo-European languages, we might try to construct an argument that ῥισσων/ῥιττων is a Greek innovation, even if the root could be inherited. Seiler (1950:65–6), who did not believe in Sievers' Law for Greek, argued that ῥισσων/ῥιττων was created analogically in the first instance from ῥιχα 'a little, quiet, slow' through the influence of the presumed antonym ὠκύς, ὠχα 'quick', which stands beside a superlative ὠκιστος; so this could explain the creation of ῥκιστος, i.e. ὠχα : ὠκιστος :: ῥιχα : X, where X = ῥκιστος, and the comparative would have been created after a putative **ῥσσων*. However, there is no form **ῥσσων*. Either **ῥσσων* once existed and has since been lost, as Seiler supposed, or else we need to explain ῥισσων in a somewhat different fashion.⁵² Given a superlative ῥκιστος (< **hēkistos*), perhaps we can understand the comparative as resulting from a proportion such as γλύκιστος : γλύσσων :: **hēkistos* : X, where X = ῥισσων.

Seiler explained the difference in the breathing in Ionic ῥιχα and ῥισσων by pointing out that Attic only preserves the comparative form ῥιττων, but has lost ῥιχα and ῥκιστος. Therefore, when **h* was lost in Ionic, ῥιχα and ῥκιστος resulted from **hēka* and **hēkistos*. However, the breathing of ῥισσων was capable of being restored on the basis of the surviving Attic form ῥιττων; it is not clear whether we should understand this as being a phenomenon of the manuscript tradition, or a reflection of a contamination between the Attic and Ionic forms in the Koiné, where ῥισσων/ῥιττων is well attested with a rough breathing.

There is an additional complication in the Ionic data. We have two pieces of evidence for a short-vowel form Ion. ἔσσων. This is attested directly in the Parisinus codices of Herodotus (ἔσσονες at 9.42). We also have the Ionic verb form ἐσσόομαι 'be inferior',⁵³ which appears to derive from ἔσσων according to the model μείων : μειόομαι :: ἔσσων : X, where X = ἐσσόομαι. This short vowel has

⁵² The earlier existence of a primary comparative from this root is strongly suggested by the evidence of Ved. *āśú-* 'quick', *āśīyas-*, *āśiṣṭa-*, Av. *āsu-*, *āsiiah-*, *āsiṣṭa-*, and Lat. *ōcior*, *ōcissimus*. However, it is not open to us to infer the precise form it might have taken in early Greek.

⁵³ Though the preservation of the breathing seems odd, perhaps this is to be explained by the influence of Att. ἡττάομαι, but it is not clear whether we should understand this influence as purely orthographical in a textual tradition, or as a linguistic reality.

usually been explained as analogical on the antonym $\chi\rho\acute{\epsilon}\sigma\sigma\omega\nu$; a proportion is out of the question, though not all analogy need be proportional.⁵⁴ However, it is also conceivable that $\acute{\epsilon}\sigma\sigma\omega\nu\epsilon\varsigma$ represents a more archaic state of affairs than $\acute{\eta}\sigma\sigma\omega\nu$, with the long vowel of this latter form being secondarily acquired under the influence of $\acute{\eta}\chi\alpha$. If the short-vowel forms are old, then we would, in all likelihood, reconstruct a root $*seH_1k-/ *sH_1k-$, which would be consistent with the Latin evidence. We may find the zero-grade root in the short-vowel comparative $\acute{\epsilon}\sigma\sigma\omega\nu$, while the adverb showed the full-grade root and subsequently influenced the vocalism of the comparative, yielding $\acute{\eta}\sigma\sigma\omega\nu$.⁵⁵ The uncertainty surrounding the antiquity of $\acute{\eta}\sigma\sigma\omega\nu$ is sufficient to cause hesitation in using it for reconstructing the behaviour of semivowels in the earliest stage of Greek, and certainly it cannot tell us anything about Indo-European. All the same, the evidence for the short-vowel forms of the comparative are also sufficiently doubtful that we cannot use them with any confidence in our enquiry.

We may be able to make cautious use of the evidence provided by $\rho\acute{\eta}\iota\omicron\nu$ 'more easily'; cf. contracted Att. $\rho\acute{\eta}\omicron\nu$.⁵⁶ There is no plausible etymology, but it is apparent we must assume a hiatus of relatively recent origin—that is either analogical or involving the loss of $*s$ or $*y$ —both in the comparative and in the corresponding adverb $\rho\acute{\alpha}$ 'easily'; cf. Homeric $\rho\acute{\epsilon}\iota\alpha$, $\rho\acute{\epsilon}\alpha$, Alc. $\rho\acute{\eta}\alpha$. Herodian (II.214) attributes a form $\beta\rho\acute{\alpha}$ (= $wr\acute{\alpha}$) to Aeolic, and this suggests a word-initial $*wr-$ cluster. These considerations probably speak for a form $*wr\acute{\alpha}s-iyos-$ or $*wr\acute{\alpha}y-iyos$. This might simply constitute another case of the analogical spread of the disyllabic version of the comparative suffix, but the form might be given a little more evidential weight in light of the fact that all the other adverbs in $-\alpha$ stand beside comparatives in $*-yos-/ * -yon-$. The overall metrical structure seems clear, and perhaps we can use the form on this basis, but with suitable caution.

4.12. COMPARATIVES BESIDE THEMATIC ADJECTIVES

There are a number of primary comparatives that lie beside thematic adjectives in Greek, e.g. $\phi\iota\lambda\acute{\iota}\omega\nu$ beside $\phi\iota\lambda\acute{o}\varsigma$, $\kappa\alpha\chi\acute{\iota}\omega\nu$ beside $\kappa\alpha\chi\acute{o}\varsigma$. However, it appears that at least some of the examples were not thematic in the first instance. Furthermore, there is little evidence from other languages for supposing that primary comparatives regularly patterned with thematic forms in the first instance; the only potentially ancient example is Hom. $\delta\lambda\acute{\iota}\zeta\omega\nu$ 'smaller' beside $\delta\lambda\acute{\iota}\gamma\omicron\varsigma$.

⁵⁴ Seiler (1950:65–6) explained the prevalence of $\acute{\eta}\sigma\sigma\omega\nu$ and the marginal character of $\acute{\epsilon}\sigma\sigma\omega\nu$ in Ionic by arguing that the semantics of $\acute{\eta}\chi\alpha$: $\acute{\epsilon}\sigma\sigma\omega\nu$ changed: rather than remaining as antonyms of $\chi\rho\acute{\epsilon}\sigma\sigma\omega\nu$ (which had allowed for the shortening to $\acute{\epsilon}\sigma\sigma\omega\nu$ in the first instance), they fell into a relationship with $\mu\acute{\alpha}\lambda\lambda\omicron\nu$: $\mu\acute{\alpha}\lambda\iota\sigma\tau\alpha$, which prompted the creation of lengthened $\acute{\eta}\sigma\sigma\omega\nu$ in Ionic once again. However, the length in $\mu\acute{\alpha}\lambda\lambda\omicron\nu$ cannot be used to explain the recreation of Ionic $\acute{\eta}\sigma\sigma\omega\nu$, since it is likely to be of Attic origin subsequently making its way into the Koiné, as we argued on p. 172–3.

⁵⁵ Such an etymology would rule out a connection between $\acute{\eta}\chi\alpha$ and $\acute{\alpha}\chi\acute{\eta}$ 'silence, quiet', Hom. $\acute{\alpha}\chi\acute{\eta}\nu$ (see Beekes 2010:51), but in any case this connection is unlikely because we only ever find a smooth breathing in $\acute{\alpha}\chi\acute{\eta}$, even in non-psilotic dialects, e.g. Pi. $\acute{\alpha}\chi\acute{\alpha}$.

⁵⁶ In the clearly secondary collateral form $\rho\acute{\alpha}\sigma\sigma\omega\nu$ we can see the analogical spread of $-\sigma\sigma-$ from $\theta\acute{\alpha}\sigma\sigma\omega\nu$ etc.

4.12.1. καλλίων

Next to thematic καλός ‘beautiful’ we find the primary comparative καλλίων. The etymology of this root is unknown.⁵⁷ The main difficulty of interpretation concerns the origin of the double -λλ-; this is not limited to the comparative, but appears in all manner of formations, e.g. in the superlative κάλλιστος, the denominative καλλύνω, the neuter *s*-stem form κάλλος. It has been variously explained. Firstly, we should note that a form καλῖός is attested in Boeotian. This [w] explains the long vowel in Hom. καλῶς vs Att. καλός, but it cannot explain the double -λλ-, for only in Aeolic would we expect to find such doubling after the loss of [w].⁵⁸ Some reconstruct **kal-yos-* > **kall-* (see e.g. Chantraine 1999:486) from which stem it would perhaps be possible to build καλλίων. However, this explanation would entail a number of things. Firstly, it implies καλλίων itself is not the original comparative but a form which has been rebuilt. Secondly, it seems to imply that the final **w* of the stem may be detached when reconstructing the comparative. This implies that **kal-* is a root to which a suffix **-w-* has been attached. It is possible that we should assume an original *u*-stem formation from which a thematic derivative has been formed, which could put the putative **kal-yos-* in an archaic category. At any rate, we would not be inclined to accept the evidence of καλλίων at face value, but at the same time the evidence for **kal-yos-* is too uncertain for our purposes. Certainly we cannot count these forms as double evidence in favour of Sievers’ Law: once for **kal-yos-* and once for καλλί-ων!

4.12.2. κακίων

We find κακίων ‘worse’ beside a thematic adjective κακός ‘bad’ in Greek, but Lamberterie (1990:821–30) points to Av. *kasu* ‘small’ (with the comparative and superlative *kasiiah-*, *kasišta*) as an argument for an Indo-European *u*-stem adjective in the first instance. It is widely believed that the Mycenaean form of the comparative may be found in *ka-zo-e* in PY Va 1323. If so, this could represent a form with a light root syllable and the monosyllabic suffix **-yos-*. We could explain κακίων as part of the well-documented spread of the -ίων suffix seen in e.g. ταχίων beside θάσσων. But the use we can make of *ka-zo-e* is doubtful, because we also have a form *ka-za* (KN Sp 4452) which is probably to be read [*k^halkia*] ‘made of bronze’. In other words it is difficult if not impossible to use Mycenaean forms written with the difficult *z*-signs to elicit information about the exact pronunciation of the relevant sequence.

4.12.3. φιλίων

We find φιλίων attested beside φίλος ‘friendly, dear’ already in Homer. The etymology of φίλος is unknown, though for a discussion of various etymological

⁵⁷ See Beekes (2010:626–7) for a survey of various uncertain suggestions.

⁵⁸ Even here the examples such as ξέννος ‘stranger’ in grammarians and late inscriptions may be hyper-aeolicisms (see Lejeune 1972:158–9 n. 1).

attempts, see Landfester (1966:34ff.). Given the lack of any comparative support for an early class of comparatives next to thematic stems, we should exercise caution in using the evidence of this example.

4.12.4. ὀλίζων

Beside ὀλίγος 'small, inferior', we find a comparative ὀλίζων 'smaller' (Hom.) ← **oligos-*. We also find ὀλείζων in Attic inscriptions, though never in literature. Seiler (1950:101–3) showed that this root vowel alternation cannot represent an original Indo-European pattern of ablaut, since ὀλείζων has a spurious diphthong, and this is likely to result from the influence of μείζων.

There could be an Indo-European etymology, if we may compare Arm. *alkat* 'poor', which could be from **H₃ligo-*. Furthermore, if there is a connection with λουγός 'ruin' then we would have to suppose that the absence of an initial vowel in λουγός was due to the Saussure effect, whereby an initial laryngeal in a sequence **#H₂RoC(C)-* could be lost; cf. ὀμείχω 'urinate'/μοιχός 'adulterer'. However, the semantic connection is not so close that the comparison with λουγός is in any way obligatory.

This is the only example of a primary comparative found beside a thematic adjective where the thematic formation might be reconstructible as such for Indo-European. We should exercise due caution in the use of this example, given the less than compelling nature of the etymology.

4.13. UNCLEAR AND SECONDARY EXAMPLES

The value of some other comparatives is more difficult to assess, because the base form is unattested, the etymology or phonological developments are unclear, the formation is clearly late, or orthographical difficulties intrude.

4.13.1. μείων

The form μείων 'smaller' has been shown to have an ancient origin by the evidence of the Mycenaean forms *me-u-jo* and *me-wi-jo*.⁵⁹ But the interpretation of this evidence is not straightforward with regard to either the form of the root or the suffix. We find traces of a root **mei(H)-*/**mi(H)-* in Ved. *mināti* 'damage, lessen', *mīyate* 'wither'.⁶⁰ Such a root could also be found in Toch.B *maiwe* 'small', with an additional suffix *-*we/o-*. However, if we assume that there is a nasal infix in forms like Latin *minus*, *minuo*, OE *minne*, and possibly Gk μινύθω ← **minuō*, then we might be tempted to consider the *-*w-* to be part of the root instead.

⁵⁹ The Mycenaean evidence rules out the old theory that μείων constitutes an analogical replacement for a putative **meinōn*, which was thought to survive in ἄ-μείνων (see Osthoff and Brugmann 1910:308–9).

⁶⁰ Pace Beekes (2010:923), the presence of a laryngeal is not guaranteed by the root vowel length in Ved. *mīyate*, since lengthening is regular before the -*ya-* suffix; it would be possible to see a -*nā-* suffix in *mināti*.

Alphabetic *μείων* could have arisen from **meyw-yōn*, **meyw-iyōn*, **mey-yōn*, or any number of variant possibilities.⁶¹ But the Mycenaean evidence guarantees a form with **w*. This clarifies the situation in one way, but raises a fresh problem. If the root was **mei(H)-*, as the Sanskrit evidence suggests, then we might have expected the primary comparative suffix to be added directly to the root and not a stem form in **-w-*;⁶² this would suggest that the comparative formation belonged to a period in which the root shape had been reanalysed. Of course, if the **-w-* was part of the root all along, as the Latin evidence suggests, then the morphology is unproblematic.

The Mycenaean spelling alternation between *me-u-jo* and *me-wi-jo* is sometimes taken to indicate a form with **y* rather than **i* in the suffix, i.e. **meyw-yos-* rather than **meyw-iyos-* (e.g. by Lejeune 1972:172). If this is so, then Mycenaean would seem to preserve a counterexample to Sievers' Law. But it is difficult to know how to interpret these spellings. Ruijgh (1967:26) uses different assumptions and reconstructs a nom. pl. **meyw-iyoh-es*.⁶³ There are tremendous difficulties in understanding the significance of the Mycenaean orthography (see the detailed discussion in §3.7.3), and in the light of these difficulties we cannot realistically use the Mycenaean forms to demonstrate the existence of a form **meyw-yos-* or indeed **meyw-iyos-*, even if we could understand its historical morphology.

4.13.2. πλέων

Most dialects have a comparative *πλέων*, *πλέον* 'more, longer, larger' (e.g. Doric and Aeolic) beside the positive form *πολύς* < **polH₁-u-* (cf. Ved. *purú-*, Goth. *filu*, OIr. *il*, etc.). There are a considerable number of variant forms such as *πλήρον*,⁶⁴ Hom. nom. pl. *πλέες*, Lesb. acc. pl. *πλέας*, n. sg. *πλέα*, Ion. *πλεῦνες* (always in Hdt.), Att. *πλεῖν*,⁶⁵ Cretan *πλίες*, *πλίας*, *πλία* (but also cf. *n*-stem *πλίον*, *πλίονος*, etc.),⁶⁶ and Arc. *πλος*. These short comparative forms have generally been understood as innovations.⁶⁷

⁶¹ See Lamberterie (1990:203 n. 9) for some other possible configurations, and for further literature.

⁶² Szemerényi (1968:32–6) supposed that the Mycenaean forms represent **mew-yōn*, which would be an analogical replacement for the expected inherited form **mey-yōn* under the influence of comparative forms such as **new-yos-* (cf. Skt *navyas-*).

⁶³ In Ruijgh's own orthography: *μειφιόες*.

⁶⁴ This is found, for example, in Miletus and Eretria. But as Seiler (1950:113) pointed out, the only apparently early occurrence (Schwyzer 1923 no. 726) comes down to us in a copy of an inscription which shows other spelling aberrations, suggesting that this is a pseudoarchaism for *πλεῖον*, influenced by Herodian's attribution of *πλήρον* and *μῆρον* to Doric and Aeolic.

⁶⁵ Güntert (1910:16) argued that the Attic form *πλεῖν* was a replacement for **pleis* < **ple-is*, an adverb with the zero grade of the comparative suffix, just as in Lat. *magis* beside *maius* < **mag-jos*.

⁶⁶ The *i*-vocalism of the Cretan forms developed by regular sound change.

⁶⁷ See Seiler (1950:113–14) for discussion of this variation and further examples. Leumann (1945:1–2) sketched a possible route by which these short forms could have developed: if a neuter singular *n*-stem form *πλέον* was reanalysed as second declension, this could explain the creation of n. pl. *πλέα* (> Cretan *πλία*, so that we find Cretan n. sg. *πλίον* in opposition to pl. *πλία*); later on, n. pl. *πλέα* (or *πλία* in Cretan) could have been reanalysed as third declension, leading to the formation of nom. pl. *πλέες*, acc. pl. *πλέας* (Cretan *πλίες*, *πλίας*), etc. All this appears to be rather unmotivated, but at least formally possible.

In Attic, and in some Ionic texts, notably in Homer and the Hippocratic corpus, we find an alternation between $\pi\lambda\acute{\epsilon}\omega\nu$ and $\pi\lambda\epsilon\acute{\iota}\omega\nu$. It seems unlikely that $\pi\lambda\epsilon\acute{\iota}\omega\nu$ is an example of the Attic analogical lengthening in comparatives making its way into Ionic textual traditions via the Koiné; in Homer the distribution of $\pi\lambda\acute{\epsilon}\omega\nu$ and $\pi\lambda\epsilon\acute{\iota}\omega\nu$ is dependent on metre, and the variation must be embedded in Homeric diction rather than resulting from later textual disruption.

It seems natural to compare $\pi\lambda\epsilon\acute{\iota}\omega\nu/\pi\lambda\acute{\epsilon}\omega\nu$ with Skt *prāyah* 'much, more', Av. *frāiiah-*, and ON *fleiri* 'more' < **pleH₁-yos-* (see Szemerényi 1968:33–36; cf. Beekes 1969:174). The usual assumption would be that in Greek the laryngeal would be lost with compensatory lengthening of the preceding vowel and subsequent loss of the newly intervocalic **y* giving $\pi\lambda\eta\acute{\iota}\omega\nu$, which does occur, but is only reliably attested at a late stage, and is generally not taken to represent the continuation of an Indo-European form (see n. 64).

If there was an original prevocalic long diphthong (i.e. **plēyos-*), and if this intervocalic **y* somehow survived into the alphabetic period in some dialects, then one might attempt an explanation of some of the observed variation by trying to draw a comparison with the behaviour of *secondary* prevocalic diphthongs. We often find instances of these in Attic and Ionic which exhibit shortening, and occasionally the loss of the intervocalic semivowel in Attic, e.g. Ion. $\sigma\tau\omicron\iota\acute{\eta}$, Att. $\sigma\tau\omicron\iota\acute{\alpha}/\sigma\tau\omicron\acute{\alpha}$ 'colonnade, portico, storage room'; cf. Dor. $\sigma\tau\omega\acute{\iota}\tilde{\alpha}$ (Cnossos, Mytilene) < **stōwiyā* (from the root **steH₂-*)—see §3.7.3. Sometimes we also find semivowel loss in Ionic but retention in Attic: an example with a short diphthong would be Att. $\epsilon\upsilon\rho\epsilon\acute{\iota}\alpha$ and Ion. $\epsilon\upsilon\rho\acute{\epsilon}\alpha$ < **ew-ya*. However, it turns out to be difficult to use such examples in order to explain the various forms of $\pi\lambda\epsilon\acute{\iota}\omega\nu/\pi\lambda\acute{\epsilon}\omega\nu$, because the loss of the semivowel in these secondary prevocalic diphthongs was probably conditioned by the following vowel; before an *o*-vowel the semivowel is typically not lost; cf. $\epsilon\lambda\alpha\iota\omega\nu$ 'olive oil' vs $\epsilon\lambda\acute{\alpha}\tilde{\alpha}$ (Ion. $\epsilon\lambda\alpha\acute{\iota}\tilde{\alpha}$), and Att. $\alpha\acute{\iota}\omega\nu$ 'epoch' < **aiwōn* vs Att. $\tilde{\alpha}\epsilon\tau\acute{o}\varsigma$ (Ion. $\alpha\acute{\iota}\epsilon\tau\acute{o}\varsigma$). But throughout the paradigm of $\pi\lambda\epsilon\acute{\iota}\omega\nu/\pi\lambda\acute{\epsilon}\omega\nu$ we would expect to find a following *o*-vowel, and so the loss of the semivowel would be unexpected.

Even leaving aside these considerations of detail, these processes do not seem to provide a convincing explanation for the short diphthong or short vowel in $\pi\lambda\epsilon\acute{\iota}\omega\nu/\pi\lambda\acute{\epsilon}\omega\nu$ and the failure to find early and convincing evidence for the expected $\pi\lambda\eta\acute{\iota}\omega\nu$ ← **pleH₁-yos-*, since $\pi\lambda\epsilon\acute{\iota}\omega\nu$ is found in precisely the dialects where the loss of the semivowel is normal, while $\pi\lambda\acute{\epsilon}\omega\nu$ is prevalent in dialects other than Attic and Ionic. While there are occasional examples of the simplification of prevocalic diphthongs in almost all dialects, the regularity would be difficult to comprehend, and it is not, in any case, regularly accompanied by shortening. Furthermore, it is far from clear that we can assume that a very early instance of intervocalic non-geminate **y* produced by the loss of a laryngeal would have behaved in the same way as the reflex of **-w(i)y-* sequences.

A rather different perspective on the problem might be gained if we adopted Lindeman's (1997:111–13) claim that an intervocalic sequence of a laryngeal followed by **y* sometimes resulted in a geminate **-yy-* without lengthening of the preceding vowel in Indo-European (see §3.7.4). This could explain the short nature of the root vowel of Att.-Ion. $\pi\lambda\epsilon\acute{\iota}\omega\nu$, but it would remain a mystery why we find $\pi\lambda\acute{\epsilon}\omega\nu$ in so many dialects where the loss of the semivowel from other types of

secondary prevocalic diphthongs was not typical. Indeed any approach that takes *πλείων* as historically prior will face the same problem.

A better approach seems to be to suppose that the older form is *πλέων*, and that *πλείων* is more recent. Beekes (2010:1206) indicates that *πλέων* can derive from **pleihon* < **pleH₁-is-on*. However, even if we accepted the morphological assumptions involved, it is not at all clear that a prevocalic diphthong produced so late in the history of Greek (i.e. after the loss of intervocalic **s*) would have lost the semivowel in all dialects save Attic and Ionic. It is conceivable that a form such as **pleH₁-iyos-* might have yielded trisyllabic **pleiyos-*, which could have been simplified at a very early stage, and in all dialects, to **pleyos-* → *πλέων*. But under this account *πλείων* is unexplained. An analogical solution is also plausible. If there was an inherited comparative **pleH₁-yos-*, this may have been replaced by forms based on the superlative *πλεῖστος* < **pleH₁-istos* (cf. Av. *fraēštām*); see Lamberterie (1990:618 n. 9). This influence may have made itself felt on more than one occasion: *πλέων* ← **ple-yos-* could have been built with a root **ple-* abstracted from **ple-isto-s* < **pleH₁-isto-s*; later, after the hiatus in the superlative was resolved, a new root *πλει-* could have been derived from *πλεῖστος*, giving *πλείων*.

In light of the uncertainties in the history of these forms, it seems too difficult to use them for the purpose of understanding the early behaviour of Greek semivowels.

4.13.3. Miscellaneous Examples

There are a number of comparatives that appear to be isolated in Greek. For example, we find the form *χείρων* ‘inferior’ (Hom. etc.), which has been assumed to be derived from **k^her-yos-*. However, no positive form exists against which comparison can be made, and there is no convincing Indo-European comparative evidence (see Beekes 2010:1622). The parallel form ep. *χερείων* may be analogically formed on *ἀρείων* ‘better’, but exactly how remains unclear.

Seiler (1950:116–19) argued convincingly that *ἀρείων* was not a *primary* comparative, but was built secondarily from the stem of an adjective *ἄρειος*, which can be found in *τεῖχος ἄρειον* (e.g. Il.15.736). The truly old primary comparative and counterpart of superlative *ἄριστος* was Myc. *a-ro₂-a₂* (= [aryoha]?), formed from a root **ar-*. However, the use we can make of this example is limited, because it is difficult to rule out the possibility that a spelling with <ro₂> could also represent [ariyoha].

We have no etymology for *ἀμείνων* ‘better, stronger’ and there is no corresponding positive or superlative form. If we may identify it in Attic proper names with a first element *Ἀμειν-*, then their early spelling with the digraph <EI> indicates that the diphthong is real and therefore cannot derive from **amen-yōn*. Seiler (1950:120) reconstructed **a-mein-yōn*, but this segmentation and analysis was bound up with the old—and now disproven—idea that there was a corresponding form **meinōn* without the privative prefix, which was subsequently replaced by *μείων* (see n. 58). This cannot stand in light of the evidence of Mycenaean *me-u-jo* and *me-wi-jo*, which can be continued directly by *μείων*.

Chantraine (1999:74) suggests that ἀμείνων could be an old positive in origin. But there is no etymology, and this seems unknowable at present.

There is no positive form beside ὀνήϊον (Dor. ὀνάιον) 'more useful' and superlative ὀνήϊστος, but it seems likely that they are connected with ὀνίνημι 'help, be useful'; Dor. ὀνάτωρ, Myc. *o-na-te* [onātēr]. There has been a certain amount of debate about whether ὀνήϊον was a comparative in origin, because an apparently thematic adjective **onios* is reported by various grammarians: acc. sg. ὄνιον ὠφέλιμον (Suid.O 365), neut. pl. ὄνια ὠφέλιμα ἢ βρώματα (Hsch.), and the feminine accusative singular in the scholia to Lycophron; the putative **onios* has been taken as an itacized spelling for Att. **onēos* < **onēios*, of which ὀνήϊον could be the neuter nominative or accusative singular form. However, Leumann (1945:8–9) argued that this late evidence is unpersuasive and showed that the semantics and usage of ὀνήϊον are perfectly consistent with its status as a *comparative* adjective.

There is no obvious Indo-European etymology for this root (see e.g. Beekes 2010:1083–4). Even if we suppose that the long root vowel goes back to an earlier full-grade vowel plus laryngeal sequence, i.e. **H₃neH₂-* (see LIV² 302–3), the origin of ὀνήϊον cannot be explained easily in this context: the long-term survival of a hiatus resulting from laryngeal loss seems improbable, and, furthermore, if we reconstruct the *-*iyos-* suffix, then the phonological conditions would not have existed in which a long vowel would be expected to have arisen in the first place (i.e. **H₃neH₂-iyos-*). On the other hand, if a laryngeal was not directly involved, for example if the formation is analogical, then we would have to suppose a root with a final long vowel, and in that case this example cannot tell us about the behaviour of post-consonantal semivowels.

There has been some debate in the literature as to whether λώϊον 'better, more agreeable' (Hom. etc.) should be analysed as a thematic adjective rather than a comparative. We cannot be certain whether the earliest attestation, neut. λώϊον (Hom.), is thematic or an *n*-stem. An *n*-stem form is definitely in place in Sophocles λώϊων, -ονος and an *s*-stem in λώϊω (acc. sg.). Thematic forms arise later and are rarer, e.g. λώϊα, λῶϊα (Thgn., Theoc.), and λῶϊος (Hdn.1.22.22). So an analysis as a comparative seems the most likely, as Leumann (1945:7–8) argued.

The etymology is unclear. Conceivably, it might be related to the verb λῶ 'wish, desire', 2nd sg. λῆς, but the origin of this form is not much clearer. Beekes (2010:882) suggests a connection with Lat. *velle* < **welH₁-*, with a zero-grade root **wlH₁-ye/o*, but even if such a phonological development could be made to work for λῶ, it is very difficult to see how λώϊον could be derived from the same root: even if we admitted a schwebeablauting form with *o*-vocalism **wloH₁-iyos-* (which would seem most peculiar in itself), the attested comparative with its long root vowel could not have arisen directly from such origins. Some of the same problems afflict the proposal to connect ἀπολαύω 'have the benefit of' (see Frisk 1973:152): we would need to reconstruct a form with *o*-grade root vocalism such as **loH₂w-iyos-*, but we have not seen any other primary comparatives with an *o*-grade in the root. It is difficult to make an assessment of the wider significance of this form (if any) for Sievers' Law, in view of the lack of a plausible etymology, and so it is best left aside.

It has been supposed that βελτίων represents a late flourishing of the primary comparative, for it appears to reflect a suffix -ίων on a stem βελτ-, which itself may derive from a resegmentation of the secondary comparative βέλτερος (Osthoff

and Brugmann 1910:157–88).⁶⁸ In view of the historically secondary nature of the form, it clearly cannot inform our understanding of the early behaviour of Greek semivowels.

We also find a comparative ὑψίων 'higher' (Pi.); see Seiler (1950:106ff.). This is built from an adverb of place ὕψι 'up, above, high' (Hom. etc.); cf. ὕψ-οῦ, ὕψ-όθεν etc., Lat. *sus-* < **subs-* (e.g. in *sustineo*). It is possible that ὕψι was a locative of **sups-*, itself an *s*-extension of **sup-* (cf. ὕπο), just as there is Lat. *abs* beside *ab* and *ex* beside *ec*. However, it is not clear whether we should derive the comparative from **sups* with the disyllabic comparative suffix, i.e. **hups-iyos-*, or from ὕψι with the monosyllabic suffix, i.e. **hupsi-yos-*. Hence this form cannot be used in our enquiry.

Clearly, πόρσιον 'further forward' is a comparative of πόρσω (Pi., trag., Lyr.)/ πόρρω (Att.) 'forward, beyond, away' (cf. πρόσ(σ)ω 'id.'), which could be identical with Latin *porrō* 'forth, forward' (cf. Praen. *porod*, perhaps < **p(o)rsō(d)*); see Beekes (2010:1223).⁶⁹

However, Chantraine (1999:929) regards πόρσω as secondarily derived by metathesis from πόρσω, which, in turn, could derive from **pro-tyō* or **proti-* + *-o-* with devocalization. If, by any chance, the final **-s-* of the stem originated in this way, then the seeming morphological anachronism of a reconstruction such as **porty-iyos-* or **proty-iyos-* would probably constitute a good reason for not using πόρσιον as evidence for the early behaviour of semivowels. However, the assumption of metathesis is ad hoc and probably unnecessary in light of the comparative evidence provided by Italic. The testimony of this example can probably be used, albeit with a degree of caution.

4.14. A SIEVERS' LAW PATTERN?

We are now in a position to gather together the evidence of the primary comparatives. We have clarified the metrical structure of our examples at the earliest stage. Furthermore, we have been able to establish, on independent grounds, which forms are most likely to be of sufficient antiquity to inform our understanding of ancient or even inherited semivowel behaviour, and which forms are most likely to be of relatively recent origin.

4.14.1. Evidence and Potential Evidence

The best evidence for potentially ancient examples of primary comparatives includes μέζων and most, but not all, of the comparatives which stand beside inherited *u*-stem adjectives, *-ro-* adjectives, and *s*-stem nouns. We find the following

⁶⁸ For an alternative view, see Seiler (1950:91–3), who instead started from a putative verbal adjective **beltos*.

⁶⁹ If **porsō(d)* was of such a degree of antiquity, we might have expected it to have undergone the first compensatory lengthening, giving **pōrō*, but the application of this change to sequences involving liquids plus **s* is far from straightforward, see Chapter 3, n. 96. According to some accounts, it would be perfectly consistent for πόρσω and a comparative **pors-iyos-* to represent survivals.

examples with a sequence that could have been heavy from the point of view of Sievers' Law, and they all have reflexes of the disyllabic suffix **-iyos-*:

- ῥῥῖων ← **sweH₂d-iyos-*;
 κῥῥῖων ← **kuHd-iyos-* or **kewd-iyos-*;
 ῥῥῖον ← **srīg-iyos-* or **sriHg-iyos-*;
 κῥῥῖον ← **kerd-iyos-*;
 ὀλῥῖον (without an etymology but in an unproductive category).

We find the following examples with a sequence which would probably have been light from the point of view of Sievers' Law, and all but one have reflexes of the monosyllabic **-yos-* suffix:

- μῥῥων ← **meg-yos-* (probably < **megH₂-yos-* with Pinault's rule);
 βῥῥων ← **bnt^h-yos-*;
 βῥῥων ← **mr̥g^h-yos-*;
 πῥῥων ← **pṛṇk^h-yos-* or **b^hṇg^h-yos-* or **d^hb^hṇg^h-yos-*;
 θῥῥων ← **d^hH₂g^h-yos-* or **d^hṇg^h-yos-*;
 ἑῥῥων ← **H₁ln̥g^{wh}-yos-*;
 κῥῥων ← **kret-yos-*;
 [and/or κῥῥων (Cret.), Dor. κῥῥων ← **krt-yos-* (see §4.6.1);]
 μῥῥων ← **mH₂k̥-yos-*;
 βῥῥῖων ← **g^wrd-iyos-*.

All but one of these examples can be seen as following the predictions of Sievers' Law, and the best way to explain this seems to be to posit a Sievers' Law alternation in semivowel syllabicity for an early stage of the Greek language. The only straightforward exception in these categories is βῥῥῖων, which has the disyllabic version of the suffix in spite of its light sequence. Provided that we are sufficiently convinced by the overall pattern, this exception may be understood quite easily in terms of the more general phenomenon whereby the **-iyos-/*-iyon-* suffix spread secondarily; cf. παῥῖον (Arat.) beside Hom. πῥῥων, ταῥῖον beside Hom. θῥῥων, etc.

It may be that an ancient comparative is reflected in ἄσιστα. But its contribution to the question is less direct. Assuming that the existence of a root ἄσ- cannot be explained in terms of an innovative resegmentation of ἄσσων, then either it goes back to **H₂em̥g^h-yos-* and constitutes an early counterexample to Sievers' Law, or else it goes back to **H₂m̥g^h-yos-* and provides a chronological indication that Sievers' Law no longer functioned after the operation of Rix's Law. The only way to reach a judgement on the plausibility of the latter position lies in an examination of other Greek categories, to establish whether the idea that Sievers' Law once applied in Greek is tenable in the wider context.

It seems pretty certain that ῥῥῖων once contained a laryngeal in its root, and κῥῥῖων and ῥῥῖον might have done so as well. Insofar as these are the best examples we have for ancient comparatives with the **-iyos-* suffix, and insofar as the

distribution of semivowel syllabicity looks exactly like a Sievers' Law alternation in other respects, we seem to be forced to reject as unfounded Schindler's contention that an obstruent cluster such as **-HT-* failed to count as a heavy sequence for Sievers' Law, at least in a Greek context. One might argue that the situation in the Greek comparative was not representative of an Indo-European rule, and seek further evidence from other morphological categories. However, given that the foundations of this obstruent cluster hypothesis in Indo-Iranian are, in any case, very slim, and there is no possibility of reliable evidence from Germanic, this theory seems rather unsupportable in the light of the evidence of this category.

If we are convinced by the overall distributional characteristics of these examples that Sievers' Law functioned at an early stage in Greek, and if we could be sure that *θάσσω* was related to Eretrian *Τήχιππος*, then the reconstructed form **d^hH₂g^h-yos-* would make us reluctant to accept Ringe's (2006:195) idea that a word-initial cluster of obstruents (including laryngeals) counted as heavy for Sievers' Law, rather than yielding at the relevant stage a sequence that already included some kind of prop-vowel breaking up the cluster. However, given the level of uncertainty over this etymology, we cannot reach a definite conclusion on this point. Insofar as *μάσσω* constitutes evidence for an original word-initial sequence of non-syllabics, i.e. **mH₂k̂yos-* in early Greek, then this might be relevant to the question, and make us generally doubtful about treating laryngeals which come to be replaced by vowels in Greek as if they were in a syllable margin.

We cannot draw too many inferences from *ἐλάσσω* about the status of polysyllabic sequences for any inherited rule-governed syllabicity alternations, because this form is from an originally monosyllabic root **H₁lng^{wh}-* which acquired an extra syllable during the history of Greek as a result of the vocalic outcome of word-initial laryngeals before consonants.

It is possible to make some limited use of other evidence, where the age of the formation is simply unknown and great antiquity is not necessarily ruled out. However, in each case, a degree of caution is required:

- ὀλίζων* ← **H₃lig-yos-* (although in a seemingly innovative category);
- ἐγγίω* (beside *ἐγγύς*—without etymology in a productive category);
- ῥήϊον* (probably from **wrās-iyos-* or **wrāy-iyos*);
- πόρσιον* (if from **pors-iyos-* and comparable to Lat. *porrō*);
- ἐχθίω* < **ek^ht^h-iyos-* (at best the etymology is uncertain, and can only be used if the connection with Lat. *exterus*, *extra* is rejected);
- φιλίω* (without etymology in an innovative category).

With the exception of *φιλίω*, these examples can be seen as respecting the conditions of Sievers' Law. We might consider these forms as a measure of additional support for the position that Sievers' Law once applied in Greek, provided that we could accept the stipulation that *φιλίω* was a later development. However, we have no other evidence singling *φιλίω* out as obviously innovative or less archaic than any other member of this subsidiary class of evidence, and so, while this is a perfectly reasonable hypothesis and consistent with other more definite evidence for the secondary spread of the disyllabic versions of the comparative suffix, we should not forget that it is just a stipulation.

Another way to look at these data would be to note that the disyllabic suffixes **-iyos-* and **-iyon-* are known to spread during the history of Greek, and these less certain examples tend to show a disyllabic suffix. From this perspective we might be inclined to leave aside most of these less certain examples, and take the evidence of ὀλίζων rather more seriously, in that, by contrast, it shows the unproductive suffix **-yos-*. On either analysis, if we use this evidence at all, it points in the direction of support for Sievers' Law, rather than speaking against it.

Just as in the case of ἐλάσσων, we cannot use ὀλίζων to draw any conclusions about the status of polysyllabic sequences; if it is sufficiently old to figure in such discussions, then it must have acquired an extra syllable within the history of Greek, i.e. ὀλίζων ← **H₃lig-yos-*.

4.14.2. Evidence with Less Potential

We have seen that not every primary comparative can provide information about the early behaviour of semivowels, either because seemingly valid interpretations of the evidence can point in two contradictory directions, or else because the forms themselves can actually be shown to have a relatively recent origin.

We cannot use the evidence of Ion. ἔσσων or Att.-Ion. ἤττων/ἤσσων, which point in completely different directions with regard to the validity of Sievers' Law in Greek, because the historical priority of one form over the other is not at all clear.

Without a more certain grasp of the phonetics which lie behind Mycenaean orthography, it is difficult to make substantial use of the evidence of *ka-zo-e* (= [kazohe]?) and *a-ro₂-a* (= [aryoha]?), since we cannot guarantee a non-syllabic semivowel in these cases. Nonetheless, we may note in passing that the usual interpretation of these forms, with non-syllabic semivowels, would make them fall in with the Sievers' Law pattern which we have already seen. The spelling alternation between Mycenaean *me-u-jo* and *me-wi-jo* is even more difficult to interpret, as we have seen, and the alphabetic μέϊων does not help to resolve the problem.

An ambiguity of a different kind prevents us from adducing ὕψίων. It is impossible to know whether the **i* vowel belongs to the **-iyos-* suffix, and so constitutes another instance of the observable Sievers' Law pattern, or whether it really comes from the stem of the base adverb ὕψι. For the same reasons, this form cannot be produced in any argument about the validity of Schindler's theories about the properties of obstruent clusters for Sievers' Law.

In some cases, uncertainty over the phonological developments hamper our enquiry. We cannot reliably use the evidence of θρασίων without also reaching a firm decision about the best explanation for the survival or reintroduction of its intervocalic **s*. The doubt seems sufficient that we ought to leave it out of account. Similarly, the uncertainties over the origin of the geminate in χαλλίων rules out its use here.

A chronological uncertainty prevents us from using γλῦσσων or γλυκίων, for although γλῦσσων looks archaic, apparently having the reflex of palatalization, it is attested later than its counterpart γλυκίων. This might be an accident of attestation, but it is difficult to be sure, and so the use of either of these forms is made

difficult. Likewise it is hard to be sure that *καλίων* can be used in light of Myc. *ka-zo-e*, so long as there is a chance that this latter form represents the outcome of **kak-yos-*.

In other cases we can be reasonably certain that particular formations are to be excluded from our enquiry because they give every indication of being built secondarily. We have already mentioned the secondary character of *ταχίων* and *παχίων*, but we must also exclude *βελτίων*, in that it seems to be resegmented from *βέλτερος*. If we agree that *αἰσχίων* is built from a secondary verbal stem **aysk^he/o-* < **ayd-ske/o-*, then this too must be set aside. It seems most probable that *ἄσσον* is a secondary analogical development, regardless of whether traces of the expected formation **āson* may have been retained in *ἄσιστα*.

Finally, not all primary comparatives were of an appropriate phonological shape to feed into a discussion of Sievers' Law. If we take *μᾶλλον* as going back to **m̥l-yos*, the semivowel was intervocalic. Any other interpretation would involve too much in the way of analogical restructuring to make the example credible as evidence.

4.15. CONCLUSIONS

It seems clear that we can only reach a reliable understanding of the distribution of semivowel syllabicity operating at the earliest stage in Greek, or even in Indo-European, by using a rather restricted set of examples. This reduced body of evidence allows us to set aside a number of later morphological trends which otherwise serve only to obscure the early picture.

Greek shows six primary comparative suffixes, but we saw that these can be analysed as continuing just two inherited suffixes **-yos-* and **-iyos-*. Moreover, the replacement of these inherited suffixes did not, in itself, rule out the possibility of deducing the early distribution of **-yos-* and **-iyos-*. The later developments can be understood on the one hand in terms of an incursion of *n*-stem forms, partially replacing inherited *s*-stem suffixes, and on the other hand in terms of a lengthening of the **i* vowel in the disyllabic suffixes—widespread in Attic and not found frequently elsewhere. The fact that the monosyllabic and disyllabic (long and short) forms of the suffix seem to fall into a complementary distribution reinforces the idea that the long **ī* forms result from a lengthening of short **i* forms (at whatever stage), since we know that Indo-European **ī* and **y* were in some kind of principled distribution in some environments (e.g. **-VyV-* vs **-CiC-*), even if the fine details of how the rules functioned are a matter for debate and investigation; conversely, there is no independent indication that **y* contracted any kind of rule-governed relationship with **ī*. In this respect we can be confident that **-īyos-* and **-īyon-* represent direct continuations of **-iyos-* and **-iyon-* (assuming **-iyon-* existed at the relevant stage), and that the distribution of the one can stand for the distribution of the other.

It seems likely that the comparative formation exhibited root and suffix ablaut in Indo-European, and it is probable that this would have had consequences for the syllabicity of the semivowel in the suffix. But since practically all traces of such ablaut alternation have been eliminated from this category in Greek, it is

impossible to deduce directly what these consequences might have been. We can only work with the remodelled system as we find it in Greek. Insofar as we find a Sievers' Law distribution in the most ancient examples, this may be an indication that Sievers' Law functioned as a phonological rule in Greek at the time when this remodelling of ablaut patterns took place, or it may indicate that Sievers' Law operated at some point prior to the remodelling, and the appropriate allomorph of the suffix stayed closely associated with the appropriate allomorph of each root. In any event, it seems perfectly coherent to use the evidence of the comparative as support for the notion that Sievers' Law once applied in this category, either in Greek or in the immediate ancestor of Greek, in spite of the morphological innovations that have taken place.

The evidence points strongly to the conclusion that Greek inherited at least one morphological category which obeyed Sievers' Law. Inevitably, we must ask whether the phenomenon was more widespread than this.

Evidence from *-ye/o Nominals

5.1. INTRODUCTION

We have seen that the distribution of **i* and **y* in the primary comparative was, in all probability, determined by Sievers' Law at an early stage in Greek. To evaluate the status of this rule properly, we need to establish whether there is any corroborating evidence from other morphological categories, and whether there is any persuasive evidence *contradicting* this pattern.

5.1.1. The *-ye/o- and *-iye/o- Nominal Suffixes

On the face of things, very many nominal forms were built with the suffixes **-ye/o-* and **-iye/o-*. Reflexes of one or both of these are found in every ancient Indo-European language, and we find evidence in Gothic and Vedic that they were in a complementary or partially complementary distribution (see §§2.2.3 and 2.3). However, in some specific instances, there is a strong suggestion that **-ye/o-* and **-iye/o-* result from the thematization of *i*-stems or locatives—in some cases at a pre-Proto-Indo-European stage and in some cases in the individual history of some languages; we must try to recognize, where possible, instances of **-y-e/o-* and **-iy-e/o-* as well as **-ye/o-* and **-iye/o-*, in an attempt to take into account this implicit depth in the historical morphology.¹ Where evidence for further segmentation is lacking, we shall reconstruct **-ye/o-* and **-iye/o-* by default, though the potentially arbitrary nature of this practice must be kept in mind. Similarly, it will often be useful to be able to refer to all nominals with the phonological sequence **-ye/o-* or **-iye/o-* as '**-ye/o-* or **-iye/o-* nominals', even if it might be more accurate in morphological or historical terms to refer to **-y-e/o-* or **-iy-e/o-* nominals separately. Where the distinction is important for our analysis, it will be maintained.

¹ Balles (1997:161–2) regards the suffix variants **-ye/o-* and **-iye/o-* as representing two different stages of derivation from **i*-locatives within the history of Indo-European, the earlier one giving **-ye/o-* (< **-i* + *-o-*) and the later one **-iye/o-* (< **-i* + *-o-*). This idea has an intuitive appeal, but would be difficult to demonstrate conclusively without a better understanding of the morphological history of these categories in all the relevant daughter languages. Even once the most ancient examples are collected, it would still be necessary to attempt to disambiguate, on principled grounds, any examples of thematized *i*-stems, perhaps also any examples of Burrow's putative **-iHo-* suffix (see §§2.3.2 and 3.3.3) and Seebold's **-iya-* formation, (see §3.3.3 and n. 13). Nor is Balles' chronological sequence a foregone conclusion in my view; cf. Chapter 2, n. 62.

It is pretty clear that not all instances of *-ye/o- or *-iye/o- belong in the same category in synchronic terms. For example, there are differences in the accentuation properties and semantic properties of various examples with *-iye/o- suffixes, such as δῆμιος ‘of the people’ (Myc. *da-mi-jo*) beside δῆμος ‘people’ and θηρίον ‘wild animal’ beside θῆρ ‘beast of prey’, and differences among forms with *-y(-)e/o-, e.g. *médʰyos (> μέσ(σ)ος ‘middle, in the middle’) vs *pedyós (> πεζός ‘on foot’).

The base forms from which *-ye/o- and *-iye/o- nominals were derived were for the most part nouns, e.g. Hom. ὄνειρος ‘dream’ beside ὄναρ ‘dream’, or πεδίον ‘surface, plain’ beside πέδον ‘soil, earth’. However, in a few cases we may find adjectives derived from adjectives, e.g. μείλιχος ‘gentle’ beside μέλιχος ‘gentle’, and, according to some analyses, λισσός ‘smooth’ beside λίς ‘smooth’. We also find derivatives from forms which came to function as prepositions: e.g. ἄπιος ‘far away, distant’ beside ἀπό, ξῦνός ‘public, general’ < *ksun-yos beside ξύν ‘with’, and κοινός ‘shared, common’ < *kom-yo-s (cf. Lat. *cum* ‘with’).

In general, these differences in accentuation, derivation, and semantics have not been exploited in this analysis. The focus is on the etymological, phonological, and metrical structure of each example in its own terms. There may well be useful generalizations to be made in the light of a more sophisticated historical and morphological analysis, and this remains a desideratum.

5.1.2. Nominal Suffixes and Sievers’ Law

If Sievers’ Law once operated in Greek or the immediate ancestor of Greek, as the evidence of the primary comparative seems to suggest, then, according to the original formulation of the law, we should expect to find the disyllabic suffix *-iye/o- after heavy sequences and reflexes of the monosyllabic suffix *-ye/o- after light sequences (suitably defined). We can find plenty of examples of *-iye/o- after a synchronically heavy sequence, e.g. θηρίον, δῆμιος. But this observation means very little, for we also find plenty of examples after light sequences, e.g. ἄλιος ‘of the sea’ beside ἅλς ‘salt, sea’ and παρθένιος ‘maidenly’ beside παρθένος ‘maiden, girl’. Even in Mycenaean we may find the disyllabic suffix after what would appear to have been a light sequence.² In fact, it is clear that the disyllabic suffix was incredibly productive from the earliest stage, giving rise to at least 10,000 derived forms before the modern period (see Chapter 3, n. 47).

As we have already noted in another context (see §2.3.2), if we take the evidence of the Vedic nominals in -ya- and -iya- as being characteristic of the inherited distribution, then forms with the disyllabic suffix following a light sequence would have been possible in Indo-European (see Seebold 1972:340–1). Seebold posited a hitherto undetected inherited nominal suffix *-īyo-, which remained disyllabic even after a light sequence and merged with the alternating *-(i)ye/o- suffix in Indo-European after a heavy sequence. Burrow (1949:58) posited a suffix *-iHo-, which, in purely statistical terms, could have had much the same impact on the

² We find Myc. *ra-wa-ke-si-jo* ‘of the lawāgetas’ (PY Ea 132 etc.) = *lāwāgesios* < **lāwāget-īyo-s*; cf. *ra-wa-ke-ta* = *lāwāgetas*. A form with the suffix *-ye/o- such as **lāwāget-yo-s* should have yielded Mycenaean **ra-wa-ke-so* (see Hart 1966:128). For an analysis of the formation, cf. Leukart (1994:297ff.).

data as Seebold's two-suffix theory. Furthermore, Mayrhofer (1986:161, 165–6) suggested that a process of delocative formation, as in Ved. *dāmiya-* 'situated in the house', should be attributed to Indo-European. In any event, examples like ἄλιος, παρθένιος, etc. would be compatible with inherited post-consonantal **i/*y* alternation under a number of different sets of possible circumstances in Indo-European, or even under a combination of some of these possibilities.

These points notwithstanding, the highly productive nature of the suffix **-iye/o-* from the very earliest period means that the Greek evidence can have little utility in any argument about the broader Indo-European question,³ and these Indo-European morphological possibilities cannot easily be applied to an interpretation of the Greek evidence without a much more thorough study of the history of this formation than is possible here. Therefore, it seems best to remain agnostic concerning the distribution of **i* after light sequences in the context of these nominal formations, and merely to test the theory that **y* was impossible in a sequence **VCCyV* or **ṼCyV*. All the theories which endorse the basic Sievers' Law position predict this, albeit with a certain amount of disagreement about the properties of obstruents and laryngeals in such contexts.

The suffix **-ye/o-* seems to have enjoyed far less success than **-iye/o-* and remains confined to a relatively limited number of examples; the same may be said of the unproductive suffix **-tye/o-*.⁴ This may be due in large part to the morphologically opaque nature of such formations following the early Greek loss of **y* in most positions. This morphological opacity may allow us to gain an insight into the ancient distribution of these suffixes in a way which is impossible for disyllabic **-iye/o-*.

To this end we must examine the metrical structure and etymological provenance of the potential **-ye/o-* and **-tye/o-* formations in Greek, in order to see whether Sievers' Law functioned in this category.

5.2. PROBLEMATICAL FORMS

We shall begin by delimiting the range of evidence which can enter into our evaluation of early semivowel behaviour. Some forms cannot be used because a consideration of their phonology or formation gives grounds for doubting their antiquity, or the relevance of their testimony. In other cases, the evidence can only be used with caution, if contentious assumptions are involved in their analysis.

5.2.1. Misleading Surface Phonology

In some cases the superficial phonology gives an impression that **-ye/o-* may be involved when it was not. For example, on comparative grounds, we can see that

³ There might be one possible exception to this generalization, if we agree with Dunkel's (1982:53–5) interpretation of ὕπιος as involving the disyllabic alternant of the unproductive **-tye/o-* suffix (see §5.4).

⁴ This suffix is found in e.g. ὀπίσω and ὀπίσω 'behind' from **opi-*; cf. ὀπισθεν(ν) and ὀπίθεν 'behind, in the future'. For further examples, see §5.4.

ὄζος ‘bough’ did not contain the suffix *-ye/o-, but derives from *ozdos; cf. Goth. *asts*, NHG *Ast*, Arm. *ost*.⁵

Similarly, we might not need to invoke a *-ye/o- suffix in Ionic πολλός, -όν, if it derives via synezesis from *poleo- < *polewo- (see Szemerényi 1974:1–31).

The Hesychian gloss δειρός· λόφος. καὶ ἀνάντης τόπος ‘ridge, steep place’ is probably to be taken together with δειράς, -άδος ‘ridge, crest’ (*h.Ap.*), Cret. δηράς.⁶ Ehrlich (1906:569–70) supposed that this rested on a *-ye/o- formation *g^{wer}-ye/o-,⁷ but Miller (1976:160–1) argued convincingly that Att.-Ion. δειράς should be connected with Att. δέρη < *derwā; cf. Arc. δερφα. The unexpected spurious diphthong in Attic δειράς can be explained if we take this to be an epic form; this becomes plausible once we note that the word is exclusively poetic, and seems to belong to the Homeric *Kunstsprache*. This being the case, δειρός cannot be taken as evidence for the original distribution of the *-ye/o- suffix.

These examples suffice to show the kinds of difficulties we encounter. In general, we will not attempt to note every case that might be confused with a *-ye/o- nominal.

5.2.2. Forms with Other Suffixes

In some cases we have evidence for the involvement of suffixes that resemble the products of palatalization; indeed, some of them may have been resegmented from forms with the *-ye/o- suffix. But such formations cannot count as independent data for our purposes. By mechanical morphological analysis we appear to find a suffix -ζε/o- (in Hom. πρῶζος ‘yesterday or the day before’, cf. πρῶϊ);⁸ -σσε/o- (in Hom. νεοσσός, Att. νεοττός ‘a young bird, chick, any young animal’ beside νέος ‘new’);⁹ -ισσε/o- (in νάρκισσος ‘narcissus’ beside νάρκη ‘numbness, deadness’);¹⁰ -νε/o- (in Hom. ἐλλός ‘fawn’ < *el^{nos}, cf. ἔλαφος < *el-n-b^{hos}, Lith. *ėlnis*, Arm. *ēln*, gen. *ēlin* ‘deer’ and Welsh *elain*);¹¹ -δε/o- (conceivably in χθιζός ‘relating to yesterday’ somehow from *k^hes-do-s (?), cf. χθές ‘yesterday’);^{12,13}

⁵ For a more recent suggestion, taking these forms back to a form *Hosdg^wo-, see Lubotsky *apud* Kloekhorst (2008:326–7).

⁶ On earlier theories, see Beekes (2010:310–11) and Miller (1976:160–1).

⁷ For the root, cf. Lith. *giriā* ‘forest’, Skt *giri-* ‘mountain’, etc., and perhaps also βορέας ‘north wind’.

⁸ Perhaps there is also a suffix -ζε/o- in βύζην ‘close pressed (adv.)’; cf. βύω ‘pack something full, stuff something’.

⁹ Frisk (1991:307) invites comparison with the suffix in περι-σός, ἔπι-σσαί, and μέτα-σσαί (see §5.3.1 and §5.4). So conceivably this -σσε/o- suffix could originate from *-t^{ye}o-, but the other reconstructible examples involve prepositional base forms rather than adjectives such as νέος, and it seems more likely that this is a separate analogical development.

¹⁰ See Plin.*HN*21.75 ‘a narce narcissus dictus, non a fabuloso puero’.

¹¹ The development of *-ln- to -λλ- marks ἐλλός as an Aeolicism; the regular treatment of an ancient *-ln- sequence in Attic-Ionic would involve loss of *n with compensatory lengthening; cf. Att.-Ion. στήλη (Lesb. and Thess. σतालῆ) < *stalnā, ὄφειλω (Lesb. ὄφελλω) < *op^helnō (see Lejeune 1972:153–4).

¹² On the difference in root vocalism between χθές and χθιζός, see Schwyzler (1953:351), who argued for a parallel development in ἱστῆ ‘hearth’ beside ἐστία. For the general difficulty in reconstructing words from this family, see §3.9.2.

¹³ Perhaps another *-de/o- suffix is to be supposed for Hom. ῥοῖζος ‘a whistling noise’ < *roydsos (see Risch 1974:173). For the suffix in onomatopoeic words, cf. ὀρυμαγδός ‘loud noise, din’ and

-αλλε/ο- (in κρύσταλλος ‘ice, rock crystal’, cf. *krust- in Lat. *crusta* ‘rind, crust’, Toch.B *krośce*, Toch.A *kuraś*, etc.);¹⁴ -ελλε/ο- (in κύπελλον ‘big-bellied drinking vessel, goblet’, perhaps cf. κύπη· τρώγλη ‘a kind of ship’ (Hsch.) and Lat. *cūpa* ‘vat’, Skt *kūpa*- ‘pit, hollow’);¹⁵ -υλλε/ο- (in ἔρπυλλος ‘tufted thyme’ if connected with ἔρπω ‘move slowly, move stealthily’); or even in one case the verbal suffix -νε/ο-, if ἵλλος ‘squinting’ (Ar.Th.846) is formed directly from the verb ἵλω ‘I turn something’ (perhaps < *wi-wlō).¹⁶

5.2.3. Forms without Etymology

We sometimes find forms with a phonological structure that exactly resembles that of examples for which we reconstruct a prehistoric *-ye/o- suffix, on the grounds of either Indo-European comparison or solid internal evidence. But where such etymological information is totally absent, surface phonology cannot be considered sufficient grounds for reconstructing a *-ye/o- suffix.

Many of these etymologically obscure forms are animal and plant names which could be of Pre-Greek origin.¹⁷ Of particular interest are the forms with stems terminating in -σσ- or -ττ-. This stem termination may also be found in various Pre-Greek place names such as Παρνασσός, Ὑμηττός, etc. We find the animal names βόνασσος/βόνασος ‘European bison’; σίττη, the name of a bird; κόττος, a river fish; and βρύσος, a kind of sea urchin; and the plant names χισός (Att. κιττός) ‘ivy’, ἄνησσον/ἄννισον/ἄνισον/ἄνησον ‘anise’, and κυπάριττος/κυπάρισσος ‘cypress tree’ (cf. the derived adjective in Myc. *ku-pa-ri-se-ja* and ethnic *ku-pa-ri-si-jo*).¹⁸ We also find various terms denoting items of material culture: πεσσός/πεττός ‘oval-shaped gaming stone, the board for gaming, any oval object’, κολοσσός ‘colossus, gigantic statue’,¹⁹ and κρωσσός ‘water pail’.²⁰

There are also a number of forms with other stem terminations superficially resembling the reflexes of a *-ye/o- suffix: animal names such as μύλλος/μύλος, an edible sea fish,²¹ and δάσχιλλος, also a fish;²² plant names such as ἀπελλόν·

ῥοῖβδος. This seems better than supposing an identity with the root in ῥοῖβδος, and reconstructing *royg^w-ye/o-s, given the total lack of onomatopoeic formations among the reasonably certain *-ye/o-nominals.

¹⁴ Beekes (2010:787) denies any such connection on semantic grounds, instead positing Pre-Greek origin for the root and suffix.

¹⁵ Note, however, that there is a discrepancy in root vowel length, which requires explanation.

¹⁶ See Chantraine (1999:318–20), Frisk (1973:456–8), and Beekes (2010:383–4). For the sound change *wl- > -λλ-, cf. the Laconian gloss α-λλανής· ἀσφαλής beside Elean ἀ-φανεός ‘assuredly’ (see Lejeune 1972:158).

¹⁷ In this account I will leave aside obvious borrowings, such as βύσος ‘yellow flax, linen’, which comes from a semitic language (cf. Hebrew *būs*).

¹⁸ A similar form emerged in Latin *cupressus*. Its origin is unknown; see Frisk (1973:50 with bibliography).

¹⁹ For extensive discussion of the meaning and pre-Hellenic origin of this word, see Benveniste (1932:118ff.).

²⁰ Some words from other Indo-European languages bear a resemblance to κρωσσός (see Frisk 1973:31, Pokorny 1959:389), but cannot be considered regular phonological correspondences.

²¹ We might compare μέλας ‘black’ (see Hester 1965:374), but this is merely a guess.

²² For some proposals, see Frisk (1973:350 with literature).

αἴγειρος ‘black poplar’ (Hsch.),²³ τιθύμαλλος ‘spurge’;²⁴ and other etymologically obscure forms such as Σελλοί ‘Selli’, the designation of the ancient inhabitants of Dodona,²⁵ ψελλός, -ή, -όν ‘obscure, faltering in speech’, μέταλλον ‘mine, quarry, etc.’,²⁶ κνέφαλλον ‘wool pulled off in carding, hence pillow’;²⁷ κιλλός ‘grey’, μάγειρος ‘butcher, cook’;²⁸ ἄεπτον· ἰσχυρόν, ἀοίκητον (ἄθικτον) ‘strong, uninhabited’ (Hsch.), and γνάμπτους· χαλινούς ‘bits, bridles’ (Hsch.), Hom. αἶνος ‘words, praise’, and αἰνός ‘terrible’.

The fact that their stem forms resemble the outcomes of palatalization by pre-historic *y by no means entitles us to assume that this is their origin. We cannot be certain about the phonological system of the language or languages from which these terms may have been borrowed or at what stage they were borrowed. All we can know is that, however they were perceived at the stage when they were borrowed, their stem-final segment(s) merged with certain outcomes of Greek palatalization.

5.2.4. Etymological Uncertainties

For some examples, there are tempting etymological possibilities which might bring them within our remit. But the uncertainties involved only allow for their provisional use, and in some cases rule them out as evidence.

We might be inclined to deduce that there was a *-ye/o- suffix in φοινός ‘blood-red, bloodstained, murderous’ and δα-φοινός, an epithet of darkly coloured savage animals (e.g. δαφοινὸν δέρμα λεόντος, Il.10.23), when we compare φόνος ‘slaughter, murder, blood, gore’. A *-ye/o- suffix would be sufficient to explain the diphthong in the root. The synchronically close relationship between all these forms is evident from the semantic closeness of the derivatives φοίνιος ‘of or like blood, blood-red, red; bloody, bloodstained; murderous’ and φόνιος ‘bloody, bloodstained; murderous’. Frisk (1991:1033–4) and Beekes (2010:1584–5) find the connection between φόνος and φοινός semantically and morphologically implausible. I confess to being unable to understand the semantic objection and it is never spelled out, but from a morphological perspective we should certainly look carefully to see how many ancient and convincing examples of *o*-grade root vocalism can be found among *-ye/o- nominals (see §5.3.2 and n. 60).

The main difficulty in using the evidence of φοινός lies rather in an etymological ambiguity.²⁹ As Chantraine (1999:1220) pointed out, if φοινῆκος

²³ Beekes (2010:115) allows the possibility of a root *H₂pel- if there is a connection with Lat. *pōpulus*. But overall it seems better to accept that we simply do not know the origin of this word.

²⁴ Perhaps this involves reduplication of a stem analogous to the one found in θυμελαία ‘spurge, flax’ (Dsc.4.172; see Schwyzler 1953:423).

²⁵ See Lochner von Hüttenbach (1960:147–51). It is probably a borrowing.

²⁶ Even if connected with μεταλλάω ‘enquire about, search carefully’, the origin of this verb is also completely obscure.

²⁷ This family of words exhibits considerable variation in initial consonant cluster and in vocalism; cf. γνόφαλλον ‘wool’ (pap. and ostr.), γνάφος ‘prickly teasel, carding comb’, etc. For possible Indo-European cognates, see Pokorny (1959:560ff.), but the phonological difficulties make an Indo-European origin unlikely.

²⁸ The Att. μάγειρος form may be borrowed from Dor. μαγῆρος (see Chantraine 1999:656).

²⁹ On this family of words, see also §7.1.9.1.

‘purple, red, crimson’ finds its Mycenaean equivalent in *po-ni-ki-ja* (f.),³⁰ then we would be inclined to reconstruct a word-initial labial stop for *φοινῖκιος*; if *φοινῖκιος* is a secondary derivative of *φοινός*—via *φοῖνιξ* ‘purple, crimson; bay (of horses and cattle)’—then this would imply a word-initial labial stop for *φοινός* also; this would be incompatible with an etymological connection to *φόνος* < **g^{wh}onos* (cf. the onomastic element -*φόντης*, Myc. -*qo-no* and -*qo-ta*; see Leukart 1994:51ff.) and *θεῖνω* ‘strike’ with the dental reflex of the labiovelar. The close semantic association between *φόνος*, *φοινός*, and their derivatives could constitute a later development.³¹ None of this is certain, but it is sufficient to throw doubt on the utility of *φοινός* for our purposes, since there is no guarantee that the diphthong in its root syllable is to be explained by positing an original *-*ye/o*-suffix.

We may have a *-*ye/o*- suffix in *χοῖρος* ‘young pig’ (e.g. Od.14.73, perhaps cf. Myc. *ko-ro*). But the matter is not certain. There are two main etymological possibilities (see Frisk 1973:1107–8). We might compare Alb. *derr* (< **ǵ^hōr-n-*) and reconstruct **ǵ^horyos*. If pigs are named after their bristles, then there may be a connection with Hsch. *χῆρ* ‘hedgehog’ < **ǵ^hēr* (cf. Lat. *ēr*, *ēris* ‘id.’ if this stands for **hēr*). Either we could assume a *-*ye/o*- suffix with an *o*-grade root (a formation which is difficult to reconstruct; see §5.3.2 and n. 60), or follow the etymology of Nussbaum *apud* Meier-Brügger (2004:255), whereby *χοῖρος* goes back to a thematic derivative **ǵ^hori-o-* ‘having **ǵ^hori-*’ where **ǵ^hori-* is presumably an *i*-stem substantivization meaning ‘bristles’. Alternatively, we could compare Arm. *gēr*, gen. pl. *girac* ‘fat’, which could go back to **ǵ^hoyro-* (perhaps cf. Russ. *žir* ‘fat, bacon’). In the latter case, the diphthong in the root would not be due to a *-*ye/o*-suffix in Greek. This second etymology has not generally found favour, but seems possible, nevertheless. This form should be counted as possible evidence.

It seems impossible to follow Meier-Brügger (1990b:245–8) in deriving *νόσος* ‘disease’ from **nok-ye/o-*, remodelled from a feminine noun **nok-iH₂* based on the root **nek-* found in *νεκρός* ‘corpse’ and Lat. *necare* ‘kill’. A form **nok-ye/o-* ought to have yielded **nossos*/**nottos* (in Ionic and Attic respectively); there are no parallels for the supposed simplification of the expected geminate outcome of *-*ky-*, and the proposed mechanism does not inspire confidence. For another approach to the etymology of this word, which does not involve the *-*ye/o*- suffix, see Willi (2008).

Meier-Brügger (1990a) has proposed that *κυλλός* ‘club-footed, halting’ is from **kulnós*, a development with schwa secundum from **k^wl-nó-s*; this could be built on the root **k^{wel}-* and mean ‘twisted’—not an unreasonable conclusion from a semantic point of view.³² However, this form is clearly Attic-Ionic, since it is found in the Hippocratic corpus, in Aristophanes, and in Homer as an epithet of Hephaistos, *κυλλοποδίω*; if we take the view that the proper outcome of an ancient *-*ln-* sequence outside Aeolic was the loss of the **n* with compensatory lengthening (see n. 11), then we would be more inclined to reconstruct *-*ye/o-* than

³⁰ Myc. *po-ni-ki-ja* is used of chariots, and these observations only apply if it means ‘crimson’ rather than ‘made of palm wood’.

³¹ See Watkins (1995:373).

³² A connection with Skt *kunī* ‘paralysis of the arm’ seems unlikely (see Beekes 2010:800–1).

*-ne/o-. Another difficulty with this etymology concerns the appeal to schwa secundum which is rather problematical, especially in this phonological context, as Vine (1999:566) points out, and no parallel for such a development of syllabic liquids is offered. Furthermore, this approach leaves unexplained the otherwise likely-looking potential cognate *κελλόν· στρεβλόν· πλάγιον* 'sideways, aslant; twisted, crooked' (Hsch.), which cannot contain a labiovelar.³³ Nevertheless, Vine (*loc. cit.*) feels that the connection to the **k^wel(H₁)-* root might be maintained, but another explanation of the root vocalism is needed, the probable *seṭ* character of the root needs to be acknowledged, and the lack of the expected laryngeal reflex must be explained,³⁴ so he reconstructs an *o*-grade formation **k^wol(H₁)-ye/o-*. The loss of the laryngeal could be explained either by Pinault's rule or through the Saussure effect. The development in the root vocalism could be explained by appealing to Vine's proposed sound change **-oly- > *-ull-*.³⁵

However, we should bear in mind that *κυλλός* constitutes one of the principal pieces of evidence for Vine's sound change. If, by any chance, the connection with the root **k^welH₁-* is incorrect, and we prefer to compare *κελλόν*, then we would also need to invoke Vine's **-oly- > *-ull-* sound change in order to explain the root vocalism, because there would not be a labial environment to trigger any version of Cowgill's Law. However, we need to use this example with caution for morphological reasons, because reliable examples of *o*-grade **-ye/o-* formations are extremely rare in Greek, and only one example is potentially reconstructible for Indo-European (see §5.3.2 and n. 60).

It is difficult to know whether *μαζός* 'breast (male or female)' should be derived from **mād-yo-s*, as Schwyzler (1953:472) supposed. There may be a connection with the verb *μαδάω* 'be moist, sodden', but this is used in a rather different context to describe the effects of a disease in fig trees (Thphr.HP4.14.5). At the same time, we should note that the largely non-Ionic form *μαστός* 'breast'³⁶ (e.g. S.El.776) cannot derive from a form containing **-ye/o-*.³⁷ It is possible that this derives from **mad-to-s* (see e.g. Chantraine 1999:671). Ultimately, there may be a connection with *μάμμη* etc. Given that we cannot be sure of stem form or the suffix, we cannot use this in our investigation.

Finding *σύρισσος* 'basket' (Poll.) beside *σύριχος* (Alex.) might suggest a **-ye/o-* noun, but there is considerable variation; cf. *συρίσχος* (Hsch.), *ύρίσχον* (Hsch.), *ύρισχος* (Phryn.), *ύρίσσοις* (Hsch.). It is unlikely that we can use this as evidence for the behaviour of **-y-*.

According to Blumenthal (1930:33), *ἄζον· μέλαν, ὑψηλόν* 'black, elevated' is to be connected with the same root as *ἄγαν* 'too much' and *μέγας* ultimately from

³³ Meier-Brügger's proposal to connect *κελλόν* with *κόλος* 'hornless, with stunted horns, docked' seems difficult given the rather clear semantic implications of the Hesychian gloss.

³⁴ Vine follows LIV² (386–8) and others in regarding this as a *seṭ* root **k^welH₁-*; cf. *πλήνη* 'nave of a wheel' < **k^welH₁-*.

³⁵ Vine's sound change accounts for some of the examples which would otherwise be captured by Sihler's (1995:42) broad formulation of Cowgill's Law, whereby **o > u* [+labial] _ R. Vine's version of Cowgill's Law is far more limited, and the change of **-oly- > *-ull-* is a separate rule (see n. 68).

³⁶ In fact, we occasionally find *μαστός* in the codd. of Herodotus, e.g. at 3.133.

³⁷ There is also a form *μασθός* from the Hellenistic period. But this seems to be a later replacement based on other terms for body parts with a similar phonological shape, e.g. *χούσθος* 'genitals' (e.g. Ar.Ach.782) and *βρόχθος* 'throat' (e.g. Theoc.3.54).

**mg-yo-s*. But in order to make this connection, the gloss needs correcting, by replacing μέλαν with μέγαν. Beekes' (2010:26) caution seems amply justified.

It has been argued that ἄροζος 'servant (of a god)' (e.g. A.Ag.231) might be a *-ye/o- nominal < *a-sod-ye/o-, with the same root as ὁδός 'road, journey' (see Schulze 1892:498). However, the matter is not certain by any means. Another possibility seriously entertained is a connection with ὄζος 'branch', as it has been thought since antiquity that ὄζος can have a meaning like 'servant' in the Homeric expression ὄζος Ἄρηος 'servant(?) of Ares', which is glossed by Hesychius as ὁ κλάδος τοῦ πολέμου 'the branch of war'. In this case the initial α-vowel in post-Homeric ἄροζος could be analogically adopted from ἄροσέω 'help, support' (see Chantraine 1999:777). Given the obscurity in etymology, we cannot use this form to draw any conclusions in this study.

The formation lying behind γλίττον· γλοιόν 'gum' (Hsch.) is unclear, but Greek cognates including γλία 'glue' (EM), γλίνη (EM), γλοιός (Semon.), etc., and external comparisons such as Lith. *gléima* 'slime' and Latv. *gleīmas* 'sticky liquid' < **gleH₁i-m-* suggest a root **gleH₁i-*. But the origin of the dental geminate in the Greek gloss is still mysterious. The related Latin form *glūten* 'paste, glue' is based on a root **gloyt-* which could go back to **gloH₁i-t-* with final simplex **t*. Beekes (2010:276–7) suggests that Greek has a geminated variant of the same **t*-suffix, but this seems rather ad hoc. De Vaan (2008:266–7) is suspicious of the similarity between γλίττον and Lat. *glittus* 'sticky, cohesive' (Cato, Paul. *ex Fest.*), and wonders whether the Greek gloss might actually be based on the Latin form. This seems a distinct possibility, and we should view this form with suspicion.

It does not seem possible, on a phonological level, that Att.-Ion. and Hom. νῆσος 'island' (Dor. νᾶσος and Rhodian νᾶσσος) is from **snāk^hye/o-*; cf. νή-χ-ω 'to swim' ← **sneH₂-* (cf. Ved. *snāti* 'bathe', Lat. *nāre* 'swim', etc.), *pace* Meier-Brügger (1993:302). We would have expected a geminate -σσ- everywhere in Homer and in Doric dialects, even after a long vowel; cf. γλῶσσα 'tongue' < **glōk^h-ya* and βῆσσα 'glen', probably from **g^wāt^h-ya* < **g^weH₂d^h-iH₂*. This being the case, the etymology is not clear and we cannot use the evidence of this form.

It is usually assumed that πάσσαλος, Att. πᾶτταλος 'peg, pin' (Hom. etc.) was built from a root **pH₂k-* with the *-ye/o- suffix followed by additional suffixation with -αλε/o-. The root is supposed to be a variant of **pH₂ǵ-* 'coagulate, become fixed'; cf. πήγνυμι, Lat. *pangō*, etc. But, as we shall see in §6.7.5, this voiceless root variant does not receive any independent support in Greek, and it might be better to suppose that πάσσαλος is a technical loanword.³⁸

5.2.5. Quantity Unknown

Meier-Brügger (2004:254–7) has argued that τυρός 'cheese' goes back to IE **tūryos*, a thematic derivative from an **i*-abstract **tūri-*, based on a *ro*-adjective

³⁸ Beekes (2010:1155) objects to the πήγνυμι comparison on semantic grounds (because pegs have not 'become stiff') and therefore supposes that the form is Pre-Greek. I cannot see the objection to the word for 'peg' having a root meaning 'stiff' or 'hard' at its base, especially given that two further derivational suffixes have been applied whose function has not yet been satisfactorily explained; after all, pegs may be used to stiffen a structure. But his ultimate conclusion might be right all the same.

**tūro-*, from the zero grade of the root **tewH₂-* ‘swell, become strong’. We would have to conclude that if **tuH₂ryos* were an Indo-European form, it would be a counterexample to Sievers’ Law. Schindler’s theory that laryngeals in some clusters formed light sequences cannot apply, since this would not contain a sequence of obstruents.

The reconstruction of **tūryos* < **tuH₂-r-y(-)e/o-* rests on two main phonological bases.³⁹ The reconstruction of a sequence involving post-consonantal prevocalic **y* rests on the Mycenaean form *tu-ro₂*, which might represent [*tur-roi*] or [*tur’roi*] ‘cheeses’ < **tūryos*, but the identification is by no means certain. The long root vowel can only be deduced from external comparison, since the attested τῦρός could be accounted for equally well by assuming Greek **tūryos*. The only secure external comparison is Av. *tūiri-* ‘whey, congealed milk’ and *tūiriia-* ‘curdled (of milk)’. These have typically been taken to indicate an inherited long root vowel, but this does not seem terribly secure, since in Av. <*ūi*> sequences involving an epenthetic <*i*> no contrast of length is preserved: *tūiri-* and *tūiriia-* could equally well represent the result of an original short **ũ*.⁴⁰ Given the uncertainty over both the quantity of the root vowel and the suffixation, we cannot use this form in our enquiry.

It is usual to follow Pausanias (5.10.1) in comparing ἄλσος ‘sacred grove’ with **Ἀλτις*, the name of the temple domain in Olympia (see e.g. Chantraine 1999:65; Beekes 2010:75). The resulting reconstruction **alt-yo-s* superficially appears to be a counterexample to Sievers’ Law. However, if ἄλσος is of sufficient antiquity to make it relevant as evidence for or against Sievers’ Law, then it could equally well represent the outcome of a root *(*H*)*lt-* (with the application of Rix’s Law yielding ἄλτ-) or **H₂elt-*.⁴¹ In that case the evidence does not allow us to decide whether the weight of the sequence preceding **y* was heavy or light at a very early stage.

5.2.6. Stems Ending in Syllabic Resonants

We will not attempt to consider all of the forms which once contained a sequence *-*R₀-ye/o-*. While these almost certainly underwent a development to *-*aR₀-ye/o-* at a certain stage, they cannot have a bearing on the validity of the predictions of Sievers’ Law, since the **y* phoneme was effectively intervocalic in the first instance, e.g. *καινός* ‘new, unexpected’ < **kan-ye/o-* < **kñ-ye/o-*; cf. Ved. *kan-īna* ‘young’, Lat. *re-cens* (see Beekes 2010:616). Other examples probably include *καιρός* ‘right time’, if it is based on the same root as *χείρω* ‘cut, shave, etc.’ and hence comes from *(*s*)*kr-ye/o-* (see Beekes 2010:617, 665). We should probably not take Hom. *θαιρός* ‘pivot of a door or gate, axle of a chariot’ into account, if it is from **t^har-ye/o-* < **d^hwr₀-yo-s* (cf. *θύρη* ‘door’). Similarly, even if

³⁹ The semantic and morphological assumptions involved seem reasonable enough, though in no sense necessary.

⁴⁰ For the Avestan orthographical point, see de Vaan (2003:301–9). We should note that de Vaan (2003:302) assumes that the root vowel of *tūiri-* was originally long, but the only basis given for this is the comparison with Greek τῦρός!

⁴¹ A possible relationship has been suggested with ἁλδαίνω ‘make grow, strengthen’ (perhaps cf. Lat. *alō* ‘feed’, Goth. *alan* ‘grow up’) and ἁλθαίνω ‘cure’ (perhaps cf. ἁλδαίνω, or possibly Skt *radhnōti* ‘thrive’), but this does not clarify the question of the root vocalism of ἄλσος.

μαλλός ‘wool’ (e.g. Hes.Op.234) is from **ml-ye/o-*⁴² and φαλλός ‘phallus’ goes back to **bʰl-ye/o-*,⁴³ these forms could not inform us about the behaviour of **-ye/o-* following non-syllabic segments at an early stage.

By the same token, we will not consider examples where the **-ye/o-* suffix is preceded by syllabic semivowels. For example, it is conceivable that the **-ye/o-* suffix is involved in γλοιός ‘gum’, if it is from **gloH₁i-ye/o-*; cf. OE *clæg* (for the root see §5.2.4).⁴⁴ But insofar as **-ye/o-* is effectively postvocalic, we will not give it further consideration.

We will not attempt a comprehensive collection of forms such as this. It was never in any doubt that stems originally ending in a syllabic resonant would be followed by **-ye/o-* in the first instance rather than **iye/o-*.

5.2.7. Forms Originating in **-ya* Feminines

We find a certain number of forms which ultimately may owe their origin to the **-yā* feminine suffix. Insofar as these forms may have contained a segment **y*, their importance is not thereby reduced in respect of the wider question of **i/*y* alternation in the history of Greek, but, as we have already argued, we might not expect them to enter into our analysis of potential Sievers’ Law behaviour for chronological reasons (see §3.5.1).

There was a regular morphological process of thematization in composition, e.g. ἄτιμος ‘dishonoured’ beside τιμή, ἀν-αίματος ‘bloodless’ beside αἷμα, ἐπί-σημος ‘remarkable’ beside σῆμα, πολύ-ανδρος ‘full of men’ beside ἀνὴρ (see Debrunner 1917:71ff.). We can identify such a process in a large number of compounds which superficially appear to contain the suffix **-ye/o-*, but only exhibit simplex forms with the **-ya* feminine suffix, e.g. εὖ-θάλασσος ‘beneficially related to the sea’ (S.OC711) beside θάλασσα, τανύγλωσσος ‘long-tongued, chattering’ (Od.5.66) beside γλῶσσα ‘tongue’, πρὸρριζος ‘by the roots, utterly’ (Il.11.157) beside ῥίζα ‘root’ (Il.11.846). There is no form **tʰalassos*, **glōssos*, or **rizos*. Similarly, beside ἄρτί-κολλος ‘close-glued, clinging, close’ (e.g. A.Ch.580, S.Tr.768), there is no simplex form **kollos*. Instead we find κόλλᾱ ‘glue’ (Hdt.2.86). The compound κηρόπισος ‘wax-pitch, an ointment’ (Hp.Morb.2.18) is built from a first element κηρο-, as in κηρός ‘beeswax’. The second element is based on πίσσα ‘pitch’, probably from **pik-iH₂*; cf. Lat. *pix*, *pice*. There is no simplex form **pissos* built with the suffix **-ye/o-*. Beside ὀρόσπιζος ‘bluethroat’ (Arist.HA592^b25), we find σπίζα ‘chaffinch’ and not **spizos*. Beside ἄλυσσος ‘healing madness’ (Paus.) we

⁴² The provenance of this form is disputed. Pokorny (1959:721) reconstructed **ml-no-*, comparing Lith. *milas*, Latv. *mil(n)a* ‘woolen cloth’. But the Lithuanian comparison has generally been abandoned; see Greppin (1981:70 n. 1) and Beekes (2010:899). The alternative connection with the Armenian hapax *mal* ‘ram’ has also been doubted: Clackson (1994:232 n. 250) prefers to assume that Arm. *mal* is a loanword from Arabic *māl* ‘possession’ → ‘sheep’.

⁴³ For the root **bʰel-*, cf. OIr. *ball* (see Pokorny 1959:120ff.). In the light of the variant βαλλία, Beekes (2010:1550) views this as a word of Pre-Greek origin.

⁴⁴ We should note that it is equally possible that this goes back to **gloH₁i-wo-*; cf. Russ. *glev* ‘slime of fish’.

find λύσσα ‘rage, rabies’ (X., Arist.), not *lussos. Beside ἄπειρος ‘inexperienced’ we have πείρα ‘test, experience’ < *per-ya, not *pēros. So we cannot use any of these compound forms as evidence for the distribution of *-ye/o-.

In other cases we cannot use a form because we do not know whether the suffix involved was *-iH₂ or *-yeH₂; e.g. κρόσσα ‘stepped copings of parapets’ (e.g. Il.12.258) is only found in the plural, and is therefore ambiguous in this respect. There are clearly related formations, e.g. compound προ-κροσσοί ‘arranged in rows’ (Hom., Hdt.), which can be secondary on the feminine, as can κροσσωτός ‘with fringes’ (Lyc. etc.). The late and rare κροσσοί ‘tassels, fringes’ (Gal., Poll., Hsch.) can be back-formed from κροσσωτός (see Beekes 2010:783). Similarly, we cannot know whether the fem. pl. form ἀγκοίναι ‘bent arms’ (e.g. Il.14.213) represents an instance of the suffix *-yeH₂ or ablauting *-iH₂. We only find ἀπέλλαι ‘assembly’ (IG 5(1), 1144:21, 1146:41) in the plural and so we face the same difficulty, and in any case the etymology is obscure (see Beekes 2010:115).

In many cases exclusively feminine forms that appear to involve *-yeH₂ occur side by side with forms in *-iH₂, and in such cases it is very difficult to be sure that the former is not built secondarily from the latter. After all, this would be a very easy analogical development, given that the respective paradigms are identical in oblique cases and outside the singular.

The use we can make of Hom. πείνη ‘hunger, famine’ (possibly < *pen-yeH₂, cf. πένομαι ‘toil, be poor, lack something’) is limited because we also find πείνᾱ, -ης, e.g. in Pl.R.585a. Even though πείνᾱ is attested later than πείνη, we cannot rule out the possibility that *pen-iH₂ was formed first.⁴⁵ Nom. sg. πείνη could have been an analogical replacement built from the oblique cases. On the other hand, we should note that the form πείνᾱ is frequently found in association with δίψα ‘thirst’ (e.g. Pl.R.585a, Pl.R.437d). So conceivably πείνᾱ was created in response to pressure from δίψα and did not involve *-yā. Nevertheless, we ought to exercise caution and refrain from using this form.

We find ἑτάϊρος, ἑταίρη, ἑτᾶρος, and ἑτάρη ‘companion, comrade’ side by side in Homer. It seems reasonably clear that *y is implicated in the history of the forms with a diphthong -αι-, but it is less clear that the suffix *-ye/o- need be involved. Chantraine (1999:380–1) and Frisk (1973:579), followed by Beekes (2010:473–4), came to the conclusion that these doublets arose under the influence of a feminine form *hétairā. A form such as *hétairā < *hétār-yā could have arisen beside ἑτᾶρος in the same way that beside χίμαρος ‘he-goat’ we find χίμαιρα. This *hétairā could have built a new nom. sg. ἑταίρη on the basis of the oblique cases. After this stage, a new masculine form ἑτάϊρος could have been created.⁴⁶ If the supposed feminine form *hétār-yā provides the explanation of these forms, then clearly we cannot use ἑτάϊρος as evidence for the distribution of the suffix -ye/o-.

The etymology of Σκύλλη ‘Scylla’ (e.g. Od.12.85) is not clear. But whether or not there are external cognates for the root, it is not very useful for our purposes, since beside Σκύλλη we also find Σκύλλᾱ (e.g. A.Ag.1233), apparently with the feminine *-ya suffix, and Σκύλλη could be based on Σκύλλᾱ.

⁴⁵ Indeed insofar as we think that *-iH₂ or *-yā was involved as such, then this difference in the date of attestation is irrelevant and we must attribute this to a prehistoric stage of Greek.

⁴⁶ This scenario is not inherently implausible, but there is one puzzling aspect. If ἑτάϊρος is a replacement for ἑτᾶρος, why did ἑτᾶρος, rather than disappearing, go on to build a new feminine ἑτάρη? Conceivably the form was created for metrical reasons.

It seems likely that τήνελλος, -ον ‘greeted with cheers’ (e.g. Ar.Eq.276) derives directly from τήνελλα ‘a ritual cry’ (see West 1974:138–9) and need not involve *-ye/o-.

Chantraine (1999:1047) suggests that στεῖρος (at E.Andr.711) is a metrically motivated replacement for inherited στεῖρα ‘infertile’ < *ster-iH₂; cf. Arm. *sterj*, Skt *starī-*, etc.

If Hsch. βάσσοις· οὐδετέρως· ἡ βῆσσα is a variant of βῆσσα, then we might be better off seeing this as a secondary formation built on the original *-iH₂ feminine. But, in any case, a *-ye/o- suffix is ruled out given that this word is neuter not masculine (see Schwyzler 1932:200).

Comparison of μείραξ ‘girl’ and Ved. *márya-* ‘youth’ might suggest a reconstruction *mer-ye/o-, with subsequent suffixation in Greek (see Beekes 2010:921). However, as Beekes notes, Greek could equally well have started with a feminine form from *meira (< *mer-ya), even if we accept the root comparison with Vedic.

Similarly, a sequence *-ly- may be suggested in Ἀπόλλων, given the contrasting treatment in Cypr. Ἀπεῖλων. Such a sequence could result from a *-ye/o-formation which has subsequently been made into an *n*-stem. However, the morphological structure is unclear and the form resists a convincing Indo-European etymology (see Beekes 2010:118). It is theoretically possible, though admittedly not all that convincing, to suppose that this could have been derived from a feminine in *-ya. It is also possible that neither *-ye/o- nor *-ya was involved, but this was a borrowing from another language with an outcome that merely resembles the outcome of palatalization.

5.2.7.1. λισσός

The adjective λισσός, -ή, -όν ‘smooth’ (e.g. Od.3.293) appears to constitute a counterexample for Sievers’ Law, because there are strong grounds for assuming that its geminate -σσ- results from palatalization and that it has a long root vowel, given the fairly clear connection with the adjective λῖς ‘smooth’ (e.g. Od.12.79) and the isolated root noun case-forms λῖτα (acc. sg. and n. acc. pl.) and λῖτί (dat. sg.) ‘linen cloth’ (e.g. Il.18.352, Od.1.130).⁴⁷ It seems likely that these forms are based on the same root as λείος ‘level, smooth’ (e.g. Il.4.484)—see Fraenkel (1910:88ff.)—and a reconciliation of the disparate root vocalisms may be achieved by reconstructing a full-grade root *leH₁i-(w)- > *lēi-(w) > *lei- and a zero-grade *lH₁i-t- > *liH₁-t- (by laryngeal metathesis) > λῖτ-.⁴⁸ Such ancient ablaut patterns could suggest that this root is of Indo-European antiquity.⁴⁹

If we want to reconstruct a form *liH₁-t-ye/o- or *līt-ye/o- for Greek, then this represents a counterexample to Sievers’ Law, unless we assume that obstruent clusters involving a laryngeal did not constitute a heavy sequence for Sievers’ Law (see Schindler 1977:60–1 and §2.3.4) or that Sievers’ Law only applied strictly at an earlier stage than laryngeal metathesis.

⁴⁷ Compare Myc. *ri-ta* (*pa-we-a*) ‘smooth clothes’(?).

⁴⁸ On laryngeal metathesis and the ablaut behaviour of the so-called Indo-European long diphthongs, see Mayrhofer (1986:173ff.).

⁴⁹ A further point in favour of this might be forthcoming if we can also compare Lat. *lēvis* and reconstruct *lēiwo < *leH₁i-w- (see Beekes 1969:171, 174; Lamberterie 1990:417ff.; Schrijver 1991:283–4).

However, it seems unlikely that any interesting conclusions concerning the validity of or environment for Sievers' Law, or its potential chronology, can be deduced from the evidence of λισσός. Fraenkel (1910:88ff.) noted that the adjective λισσός originally only occurred in the feminine λισσῇ.⁵⁰ If this was itself a replacement for a *-yǎ feminine form *lissǎ < *lit-yǎ (standing beside λίσ 'smooth' just as θῆσσα stands beside θῆς and Κρῆσσα stands beside Κρῆς), then the attested form λισσῇ could have been built by paradigmatic levelling from oblique cases, such as gen. sg. λισσῆς. This is also the sequence of events supposed by Beekes (2010:865–6). Given this uncertainty, λισσῇ cannot be reliably used in our study of the distribution of *-ye/o-.

5.2.8. Historically Secondary Formations

We can be reasonably confident in reconstructing *-ye/o- adjectives for δισός, Att. διττός 'twofold' (e.g. Pi.N.144, Pl.Tht.198d) < *dik^hyo-s (cf. δίχα 'in two, asunder'), and τρισός, Att. τριττός 'threefold' (e.g. E.Tr.924, Pl.Lg.782d) < *trik^hyo-s (cf. τρίχα 'in three parts, ways').

However, the origin of the Ionic forms of these adjectives διζός (e.g. Hdt.2.44) and τριζός (e.g. Hdt.1.171) is less clear.⁵¹ The usual explanation invokes the epic adverbial forms τριχθᾶ 'in three parts' (Il.2.668 etc.) and διχθᾶ 'in two parts' (e.g. Od.1.23 and Il.16.435), which are doublets of δίχα, τρίχα, but are of unknown origin and antiquity. It has been supposed that διζός and τριζός were the regular phonological outcome of *dik^hyo-s and *trik^hyo-s. Such forms would constitute violations of Sievers' Law in its original formulation, though not under Schindler's (1977:60–1) assumption that obstruent clusters were light for Sievers' Law.

However, there are a couple of problems with this explanation of the origin of διζός and τριζός. The first issue concerns the distribution of forms. While διζός and τριζός occur in Ionic prose and verse (Anacr., Hdt.), the adverbs τριχθᾶ and διχθᾶ are restricted to epic diction: where Homer has τριχθᾶ, διχθᾶ, δίχα, and τρίχα, Herodotus only has δίχα and τρίχα. It could be that the epic forms τριχθᾶ and διχθᾶ were archaisms from the point of view of classical Ionic. The apparent etymological heterogeneity of the forms in non-epic Ionic could have arisen by competition between synonymous forms: perhaps at a certain stage some Ionic dialects had the etymologically coherent set δίχα, τρίχα, δισός, and τρισός, while other Ionic dialects had the equally coherent διχθᾶ, τριχθᾶ, διζός, and τριζός. The situation in Ionic prose could result from dialect contact, and competition between synonymous forms, such that δίχα and τρίχα ousted διχθᾶ and τριχθᾶ, while διζός and τριζός displaced δισός and τρισός.

This seems reasonable enough, but if these sets of forms are the product of diversity in the Ionic dialects, then either διζός and τριζός were derived within Ionic—in which case *-ye/o- cannot have been directly involved, since

⁵⁰ At an early stage we only have the feminine form λισσῇ: three times in Hom., once in A.R., and once in AP. The masculine λισσός only appears in a third-century Cretan inscription (IC I IX.) with quite a different sense, 'poor, insolvent'.

⁵¹ We also find τετραζός and πενταζός in Aristotle, but it seems likely that these are secondarily built after the model of διζός and τριζός.

post-consonantal **-y-* did not survive as such into the history of Ionic—or else this diversity of formation was inherited from an earlier stage, perhaps common Attic-Ionic, South Greek, or even Proto-Greek. But in the latter scenario, unless we make the somewhat unlikely supposition that the division between dialects with *δίχα/τρίχα* and those with *διχθα* and *τριχθα* constituted a persistent and ancient isogloss going back to a period when post-consonantal **y* still existed, we would be obliged to reconstruct a common stage with a rather rich inventory of numeral adverbs, having two sets of semantically indistinguishable adverbs *δίχα/διχθα* and *τρίχα/τριχθα* from which two sets of semantically indistinguishable adjectival derivatives **dik^hyo-s/*dik^hyo-s* and **trik^hyo-s/*trik^hyo-s* were formed. Perhaps there were subtle semantic differences which are no longer obvious. But, nevertheless, this abundance of formations raises suspicions.

A more likely scenario can be posited if we do not suppose that *διξός* and *τριξός* are terribly ancient. They could be derived within the history of the Ionic dialects. On any account, we ought to suppose that *δισσός* and *τρισσός* were built from *δίχα* and *τρίχα* at a reasonably early stage, since they are frequent in Attic and Ionic in all kinds of texts, and also occur in Pindar; *τρισσός* is used by Hesiod. It would have been possible to abstract a derivational suffix **-se/o-* in the numeral system of Ionic (but not Attic) if *δισσός* and *τρισσός* were reanalysed in terms of the relationship that they bore to the numeral adverbs *τρίς* ‘three times’ and *δίζ* ‘twice’.⁵² In an early Ionic dialect which inherited *δισσός*, *τρισσός*, *τρίς*, and *δίζ*, but, for whatever reason, had *διχθα* and *τριχθα* rather than *δίχα* and *τρίχα*, it might have made sense to use this **-se/o-* suffix to build new adjectives from *διχθα* and *τριχθα*: **dik^hso-s* and **trik^hso-s* > *διξός* and *τριξός*, which displaced the inherited numeral adjectives *δισσός* and *τρισσός*.⁵³ We certainly know that the numeral system was in an ongoing state of analogical innovation, and a development of this kind would not be particularly unusual (see Schwyzler 1953:598β). Dialect contact would still have to be intrinsically involved in this scenario, because we would also have to suppose that the very widespread forms *δίχα* and *τρίχα* displaced *διχθα* and *τριχθα* in all the dialects where these had hitherto survived, with the result that these forms were only preserved in Homer, where they served a metrical function. Furthermore, *διξός* and *τριξός* must have been adopted generally in literary Ionic.

5.2.9. The Evidence for **ye/o-* after **-w-*, **-s-*, and **-H-*

We have already seen that our ability to judge, on surface phonological criteria, whether to reconstruct a sequence **-wye/o-* as opposed to **-wiye/o-*, or **-syē/o-* rather than **-siye/o-*, is severely limited (see §§3.7.1 and 3.7.3).

⁵² We can also identify a suffix *-σε/o-* in forms such as *φριξός*, *-ή*, *-όν* ‘standing on end, bristling’ (Arist.*Phgn.*809^b25); cf. *φριξ*, *φριξός* ‘ruffling of a smooth surface, bristling of hair’ (e.g. *Il.*23.692)—see Schwyzler (1953:516). But semantically, there is no reason to see why this would be involved in the formation of the number system.

⁵³ It is conceivable that there was existing support for an adjective of this shape in Ionic *ἄπαξός* ‘solitary, unique’, if this is to be read in Hdt. (2.79, 7.96); cf. Hsch. *ἄπαξοι*: *μοναχοί* from *ἄπαξ* ‘once’.

There are only a couple of examples involving these sequences which might have constituted counterexamples to Sievers' Law. One such example is αῦος 'dry' (see §3.7.2.1). If it had gone back to *saus-ye/o- (see Peters 1980:11), then it would have involved a heavy sequence in the root. However, in this instance there is no direct evidence that the *-ye/o- suffix was involved, and in any case if we follow Lubotsky's (1985) reconstruction of the root, we might rather reconstruct *H₂sus-ye/o- > *asus-ye/o- > *ahuh-ye/o-.

If the phonological outcomes had been less ambiguous, then examples like θεῖος 'divine' < *d^hH₁s-ye/o- or γεραιός 'old' < *geras-ye/o- < *gerH₂s-ye/o- might have given a useful insight into the properties of laryngeals in these contexts.

The only nominal example where there might be independent grounds for supposing a sequence *-wye/o- following a heavy sequence is the word for 'egg', the reconstruction of which raises a substantial range of problems (see §3.5.3.3). In all other cases the preceding sequence is light, but the value of any individual example is undermined by the difficulty in being sure that we should reconstruct *-w-ye/o- rather than *-w-iye/o-.

We have already seen that the development of intervocalic *-Hy- sequences is a matter of some uncertainty (see §3.7.4). If Lindeman (1997:111–13) is right to suppose that the outcome was *-yy- at an early stage, then this could have survived in Greek and been written with intervocalic iota. On the other hand, if we were to assume that the regular development is represented by examples like ἐάω 'permit', which is often taken to be derived from *H₁weH₂-ye/o- (cf. Ved. *váyati*, YAv. *frā-uuaieiti*, etc.; see LIV² 254), then we would expect a zero reflex. The only nominal example which might involve such a sequence seems to be the word for 'son', υἱός, υἰός, etc.⁵⁴ However, far from elucidating the problem, matters only become more complicated. The root appears to be *suH-; cf. Ved. *sūnú-*, Av. *hunú-*, Lith. *sūnus*, Goth. *sunus*, etc. But Greek and Tocharian agree in showing a different suffix *-yu or *-iyu; cf. Toch.B *soy*, Toch.A *se*, gen. *seyo*. It seems that the thematic forms in Greek are replacements for original *u*-stems. The range of dialectal variation is simply enormous, e.g. ep. υἱός, Lac. υἰός, Myc. *i-jo*, Att. υἱός (Old Att. υῖός, ὕς), gen. sg. υἱέος (see Beekes 2010:1528). It seems unlikely that this form can be used as evidence as to the distribution of ancient semivowel syllabicity, until all aspects of its history of formation have been satisfactorily understood. For this reason, it seems best to leave the evidence of this form to one side in reaching our conclusions.

5.2.10. Conclusions

A great mass of material, which we cannot legitimately use for our enquiry, has been put aside; it is perhaps worth recapitulating the few potentially relevant examples we have looked at so far.

It might be possible to take φαινός 'blood-red' into account if the link with Myc. *po-ni-ki-ja* proves to be groundless, and if there is, after all, a connection with φόνος. If χοῖρος 'young pig' goes back to *g^hory-o-s or *g^hor-yo-s, rather than

⁵⁴ Also relevant for this question is the nominal suffix -αος, which might derive from *-eH₂-ye/o-, but it seems difficult to rule out the possibility that this comes from *-eH₂-iye/o-.

being inherited with a root diphthong, then it might also be useable. If *κυλλός* ‘club-footed’ derives from **k^wol(H₁)-ye/o-* or **kol(H₁)-ye/o-* and we accept Vine’s change of **-oly-* > *-ull-*, then it might be relevant. However, we ought to be aware that the potential examples of *o*-grade **-ye/o-* formations almost always involve significant problems of interpretation in the evidence, or else can plausibly be taken back to thematizations of other types of formation. These origins do not exclude such evidence from consideration, but an attempt to understand the chronology of formation becomes imperative.

The only examples we have touched on so far which can be used without reservation are *δισσός* < **dik^h-yo-s* and *τρισός* < **trik^h-yo-s*.

5.3. MORE CONVINCING EVIDENCE

We can identify a sequence **-ye/o-* in Greek, be it from **-ye/o-* or **-y-e/o-*, using a mixture of internal and comparative evidence. In some cases the use of the suffix in a particular morphological collocation can only be reconstructed for Greek, but sometimes the comparative evidence allows reconstruction for Indo-European itself.

5.3.1. Internal Evidence from Greek Alone

Greek evidence for characteristic patterns of stem allomorphy is sometimes sufficient to suggest that a **-ye/o-* suffix should be reconstructed. But some examples are stronger than others, either because the attestation is more secure, or our understanding of the morphology is better. The confidence we place in any of this material must be tempered by the lack of comparative evidence, which would have guaranteed a certain level of antiquity, for either the root or stem, or even for the **-ye/o-* formation itself. The lack of an Indo-European etymology does not rule out the use of any given example, but we probably need to exercise more caution than was necessary in the case of the correspondingly unsupported primary comparative formations, since in these thematic formations we do not have a sufficiently characteristic pattern of inflection to help us to be absolutely confident about the morphological structure.

We reconstruct **ksun-yo-s* > *ξυνός* ‘public, general’ because we find the semantically plausible base *ξύν*, and **-ye/o-* is the only likely adjective-forming suffix that would lead to the lengthening of the root vowel in Ionic as well as Attic and Doric.

We find some internal evidence for reconstructing the **-ye/o-* suffix for Hom. *σπεῖρον* ‘piece of cloth’ < **sper-ye/o-*; cf. *σπάρον* ‘rope, cable’ (e.g. *Il.2.135*) and *σπάργανον* ‘band for swathing infants’ (e.g. *h.Merc.301*) < **spr-*. From the same root we also find a feminine *σπεῖρᾶ* ‘anything twisted or wound’ (e.g. *Hp.Morb.2.33*) < **sper-ya* < **-iH₂*, but we have no evidence that this had historical precedence over the **-ye/o-* formation, and the semantic difference suggests that these formations are relatively independent.

Beside κύπειρον ‘galingale’ (e.g. Il.21.351, also -ος e.g. in *h.Merc.*107), we find κύπερος (Hp.Nat.Mul.58), so that we might be able to reconstruct **kuper-ye/o-*.⁵⁵ There is no Indo-European etymology for this word, and names for plants are often indigenous, so this should be counted as possible evidence, but used with caution.

Beside αἴγειρος ‘black poplar’ (e.g. Od.7.106) we find αἴγερος read at *Com.Adesp.*1276 (Kock). This might be an indication that we should reconstruct **ayger-ye/o-*. But, on the other hand, there is no known Indo-European etymology and tree names are often indigenous (see Chantraine 1999:29–30). Beekes (2010:31) thinks that the vowel/diphthong alternation is actually indicative of such an origin, but the *-ye/o- suffix seems equally probable a priori. As with all the examples which lack comparative support, we should use this with caution.

Beside κάρταλλος ‘basket with a pointed bottom’ there is a rare orthographical variant κάρταλος in Philo etc. But given that κάρταλλος is only attested from the Hellenistic period onward, it is unlikely to provide secure support for the reconstruction of a *-ye/o- suffix. The form should only be used with great caution.

When we compare βυσσός ‘depth of the sea’ (Hom., Hdt., Arist.) with βυθός ‘the deep’, it seems very likely that the *-ye/o- suffix is involved (see Schwyzler 1953:472).⁵⁶ An Indo-European etymology is difficult to find, because the frequently cited connections with βαθύς ‘deep’ and βῆσσα ‘glen, vale’ do not seem workable in phonological terms. Nevertheless, the example can be used with caution on the basis of the language-internal evidence alone.

The post-Homeric περισσός ‘prodigious, beyond normal size’ (Hes.Th.399 etc.) is likely to be from **perik-ye/o-*; cf. the preposition περίξ ‘round, about’ (Hdt., E., A., etc.), which appears to be an extended form of περί (see Schwyzler 1953:472).⁵⁷

5.3.2. Forms with Comparative Evidence

We have comparative evidence for a number of roots whose Greek reflex is best explained by positing a suffix *-ye/o-, or *-y- + *-e/o-. Occasionally, we have evidence for collocations of specific roots and *-ye/o- / *-y-e/o- from more than one language, which makes it likely that the formation should be reconstructed for Indo-European.

We find clear evidence for an inherited formation in **H₂elye/o-* (or **alyos*) > Att.-Ion. ἄλλος ‘another’; cf. Cypr. αἶλος, Lat. *alius*, Goth. *aljis*, Arm. *ayl*, OIr. *aile*,

⁵⁵ We also find κύπερος (Alcm.) < **kupr-ye/o-*, which is probably represented in Mycenaean *ku-pa-ro*, *ku-pa-ro₂* (cf. *ku-pa-ro-we*, apparently with the suffix *-went-). Since we reconstruct a *y between two syllabic segments in this instance, there is no question of this form being relevant for studying post-consonantal syllabicity alternation.

⁵⁶ Frisk (1973:276) offered **but^h-yo-s* or **but^h-so-s* as possible preforms, but **but^h-so-s* does not seem possible; if the geminate -σσ- went back to a sequence *-t^h-y-, then the failure to find simple *-s- from a cluster involving a dental could be easily understood in Attic-Ionic and in Homer, in terms of the effect of an intervening transparent morpheme boundary (see Lejeune 1972:103–4, *pace* Beekes 2010:247). On the other hand, there is no evidence at all to show that a morpheme boundary could preserve or produce a geminate *-ss- in place of expected *-s- < *-t^(h)-s- (see Lejeune 1972:74–5).

⁵⁷ On the potentially ambiguous nature of this formation, see n. 74.

Toch.B *alye-k*, etc.⁵⁸ It is less clear what the morphological structure of this form might be. We might suppose that the **-ye/o-* suffix is involved, or a thematization of a locative in **-i*, but we are not even in a position to identify where the root ends and the suffix begins. This does not matter too much for our analysis, since the form is clearly inherited with a post-consonantal prevocalic **y* and we can make use of it on that basis.

Beside the root noun ποῦς, ποδός, Greek shows the **-ye/o-* formation πεζός 'going on foot' (adj.); cf. Ved. *pádyā-* 'regarding the foot'. It seems likely that this is an example of Indo-European antiquity, and it would appear perfectly possible on semantic grounds, though not provable, that it was delocative in the first instance.⁵⁹

We find both μέσος and μέσος 'middle, in the middle' in Homer (e.g. Il.3.69, Il.7.258); cf. Cretan μέττος. Comparison with formally identical cognates such as Ved. *mádhyā-*, Av. *maidya-*, Goth. *midjis*, Arm. *mēj-*, Lat. *medius* allows us to reconstruct an inherited Indo-European adjective **médʰyos* with confidence. It is less clear how this should be morphologically segmented. It is tempting to suppose that it is based on a locative case form of an otherwise unattested noun: **medʰi-* + *-e/o-*. However, it ought to be borne in mind that we have no evidence for the base noun, and so this is ultimately just a reasonable supposition rather than a demonstrable derivation.

A clearer case can be made for πόσος 'how much' (e.g. A.) beside Ion. χόσος (e.g. Hdt.), which seem to be derived from IE **kʷoti*; cf. Lat. *quot*, Ved. *káti* 'how many', etc. In similar fashion, Hom. τόσος/τόσος 'so great, so many' (cf. Myc. *to-so*) is best understood as an adjective derived from Indo-European **toti*; cf. Ved. *táti* 'so many' and Lat. *tot*, *toti-dem*. We also find secondary forms such as ὀπόσος/ὀπόσος, Ion. ὀχόσος 'as much/many as', and ὄσος/ὄσος, Cret. ὄζος, ὄττος 'as great, how great'. But the close parallels in formation and function in these latter examples and their lack of comparative support mean that only πόσος and τόσος could serve to elucidate the Indo-European situation. It is also unclear whether the thematic formations **kʷoty-os* and **toty-os* themselves go back to Indo-European, since, strictly speaking, only the base forms such as **kʷoti* and **toti* are reconstructible.

Weiss (1996:672) takes πελλός/πέλλος 'dark-coloured' (Theoc.) as a thematic derivative from an ablauting *i*-stem **peli-/poli-* (cf. πελιδνός 'livid, blue, dark', Ved. *palitás* 'grey', πολιός 'grey, grizzled' perhaps < **poli-wos*, etc.); see §3.5.3. The thematic formation is confined to Greek, but the *i*-stem would have to be reconstructed for Indo-European.

It seems very probable that λεῦσσον '(white) pith of a fir tree' (hapax in Th-phr.HP3.9.7) is built from the root **leuk-/luk-* (cf. λευχός 'white'); see §3.5.3. We could suppose that this is a **-ye/o-* noun with an *o*-grade root, but there is only one reconstructible example of such a formation.⁶⁰ Therefore, it might be better

⁵⁸ From the same stem was built ἀλλήλους < **allo-allo-*; on the dissimilation of the second geminate and the vocalism, see Schwyzler (1953:260, 446 n. 8).

⁵⁹ We also find a **-ya* feminine πέζα 'the bottom end of a body/garment, etc.' (e.g. Il.24.272). This does not diminish the value of πεζός as evidence for **-ye/o-*, because it is quite clear on semantic grounds that πεζός is not derived from πέζα.

⁶⁰ We have seen that τόσος and πόσος may not involve a **-ye/o-* suffix so much as a thematization of Indo-European forms ending in **-i* (see previously in this section). Similarly, **aossos* (implied by

to follow Nussbaum (1999:403) in deriving *λοῦσσον* from **lowk-y-o-s*, a thematic derivative from an acrostatic *i*-stem formation **lowk-i-/lewk-i-*. It is quite clear that **lowk-y-o-s* violates Sievers' Law under any of the formulations that have been proposed. However, its value as evidence of the earliest situation needs to be judged in the wider context, because the age of the base *i*-stem **lowk-i-/lewk-i-* is difficult to ascertain, as there are no cognate forms with the requisite vocalism;⁶¹ in principle, it could be a Greek innovation. Furthermore, the thematization of this *i*-stem is a uniquely Greek development that took place at an unknown stage. In consequence it is difficult to know how far back to project the form **lowk-y-o-s*, and to know whether we should have expected any inherited principles of semivowel syllabification to have applied at that stage. For this reason, *λοῦσσον* cannot automatically be taken as a decisive counterexample to Sievers' Law in Greek. An assessment of its status needs to take place in the light of the rest of the evidence.

Chantraine (1999:1186) suggests that *φελλός* 'cork oak' (Pi.P.2.80 and Thphr.HP1.2.7) originally denoted the cork rather than the tree that produced it, comparing the compound *φελλόδδρυς* 'holm-oak'. In that case, *φελλός* could be a specialization in Greek of an Indo-European form designating 'bark'; cf. *φολίς* 'the skin of a serpent' and Russ. *boloná* 'protuberance on a tree' < IE **b^hol-neH₂* (see Pokorny 1959:119). On comparative grounds we might suppose **p^hel-no-s* > *φελλός*. But this development would presuppose that an Aeolic form had been generalized.⁶² A form **p^hel-yo-s* would explain the Greek evidence more satisfactorily.

Beside Hom. *ὄνειρος* 'dream' we find *ὄναρ* 'dream' (Od.19.547), and we must suppose that in this instance the **-ye/o-* suffix was added to a full-grade stem **oner-*.⁶³ There seems to be some comparative evidence for **-ye/o-* formations built from this root, though there is disagreement as to the root vocalism; cf. Arm.

ἀοσσέω 'help, support' and *ἀοσσητήρ* 'helper') is probably an *i*-stem derivative (see §§3.5.3.2 and 5.3.3). There may be an etymological diphthong in the root of *χοῖρος* 'young pig', but even if there is not this might be an *i*-stem derivative in **-y-e/o-* (see §5.2.4). The formational history and etymology of *φοινός* is far from certain (see §5.2.4). In the case of *κυλλός* 'club-footed, halting', the etymology is in doubt and is reliant for its interpretation on Vine's sound change **-oly-* > *-ull-*, but in any case finds no comparative support, which makes reconstruction uncertain (see §5.2.4). Lesb. *ὄνοιρος* 'dream' could represent a zero-grade formation (see n. 63). The etymology of *ἄοζος* 'servant of a god' is obscure and may well not involve **-ye/o-* (see §5.2.4). There may not be a **-ye/o-* suffix in *γλοιός* 'gum' (see n. 44). We may rather reconstruct **-ya* feminine formations behind *ἄρτι-κολλός* 'close-glued', *κρόσσαι* 'stepped copings of parapets', and *ἀγκοίναι* 'bent arms' (see §5.2.7). We cannot realistically believe that *νόσος* 'disease' is from **nok-ye/o-* (see §5.2.4). It seems plausible that *φύλλον* 'leaf' goes back to an *o*-grade **-ye/o-* formation in Greek terms, but the corresponding Celtic form shows an *e*-grade, making reconstruction of this form problematical (see pp. 207–8). The only reconstructible example in Greek is attested indirectly in Hom. *χοίρωνος* 'ruler, commander' ← **kor-yo-*; cf. Goth. *harjis*, Lith. *kārias*, etc. See §5.3.3.

⁶¹ Compare the zero-grade form in Ved. *rúci-* 'gleam' etc.

⁶² For the sound change, compare *ἐλλός* 'fawn', see n. 11.

⁶³ According to Hesychius, Cretan used a form *ἄναιρον* (*ἄναιρον*: *ὄνειρον*. Κρητες), with the initial [α] possibly by analogy with *ἄνα-* (see Chantraine 1999:802). Lesb. *ὄνοιρος* is ambiguous between a zero-grade or a full-grade form with *o*-vocalism. If these formations are potentially zero grade, then they do not enter into our considerations, because they would be expected to show *y between syllabic segments in any event.

anowrj, which could go back to **onōryo-*.⁶⁴ The comparative evidence would allow ὄναρ and ὄνειρος to go back to **H₃(e)nṛ* and **H₃(e)ner-ye/o-*, but the discrepancy in vocalism might cause us to hesitate in reconstructing this formation for Indo-European itself. There is no pressing morphological or semantic reason to suppose that this **-ye/o-* formation was delocalative, or derived from an *i*-stem. It seems best simply to reconstruct **-ye/o-*.⁶⁵

Sometimes we posit a **-ye/o-* suffix because we can reconstruct the base form from the evidence of another Indo-European language. We find a cognate of Hom. ἡπειρος, Dor. ἄπειρος, and Aeol. ἄπερρος 'land, continent' in OE *ofer*, MHG *Ufer* 'shore' < **ápero-*, for which Beekes (2010:522–3) suggests a reconstruction **HeH₂pero-*.⁶⁶

Beside σείρη 'cord, rope' (e.g. Il.23.115) there is an apparent cognate σορός and also a correspondence with Lith. *tveriu*, *tvėrti*. The evidence of the Balto-Slavic accentuation suggests a long vowel in the root which could result from the presence of a laryngeal. So we may reconstruct **twerH-*.⁶⁷ The Greek reflex supports Pinault's rule whereby a laryngeal was deleted between a consonant and **y* (see §3.8.1). Insofar as one accepts that this laryngeal loss preceded the application of Sievers' Law, the example can be seen as containing a light sequence.

We can perhaps see the same loss of a laryngeal in Hsch. ἄειρον· ἄρρητον and ἄειρον· ἄρρητον 'unspeakable', both from **n_o-werH₁-ye/o-* (cf. εἶρω 'say'; see Balles 1997:145). But the lateness of their attestation rather limits the positive contribution they can make.

We might be able to compare φύλλον 'leaf' (e.g. Il.1.234) with Latin *folium* < **b^hol-ye/o-* if we follow Sihler's (1995:42) formulation of Cowgill's Law, whereby any **o* between a labial and a resonant gives *u* in Greek; cf. μύλη beside Lat.

⁶⁴ On the Armenian evidence and on the contribution of the Albanian cognates *andërrë* and *ëndërr*, see Solta (1960:287–8).

⁶⁵ Balles (1997:150–2) argues that ὄνειρος derives from **H₃aner-yo-s* < **H₃aner-iyō-s* by means of an Indo-European rule which rendered a rhythmical improvement by replacing **-iye/o-* with **-ye/o-* in 'langen Wortformen' which contained a sequence of light syllables. However, this analysis presupposes that we are in a position to make a clear functional distinction between forms which ought to have **-ye/o-* and forms which ought to have **-iye/o-* in Indo-European. To be sure, it seems almost certain that more than one suffix lies behind the nominals in **-ye/o-* and **-iye/o-*. But it is not clear that we have a sufficient basis for deciding that ὄνειρος ought to have shown the **-iye/o-* suffix in the first instance rather than the actually attested **-ye/o-* suffix, either on morphological or semantic grounds. This analysis also relies on the assumption that a word-initial **HR-* sequence already contained an epenthetic schwa in the proto-language; otherwise, it would be difficult to classify **H₃aner-iyō-s* as a long word-form in need of rhythmical alteration according to Balles' criteria. This assumption does not seem to be well supported, given the failure to find syllabic reflexes of laryngeals in this position outside Greek, Armenian, and Phrygian.

⁶⁶ Balles (1997:152) suggests that the Greek form is a hypostatised derivative in **-o-* from a locative in **-i* which was itself an overdetermined formation built on a locative in **-er-*, i.e. **āp-er* + *-i-* + *-o-*. But all this is rather speculative. In descriptive terms, the difference between the Germanic and Greek forms is the addition of **-ye/o-*; the derivational history and internal structure posited by Balles might be right, but seem to go somewhat further than the evidence allows.

⁶⁷ Alternatively we could compare Hitt. *turiya-* 'harness', which Melchert (1994:132) derives from **d^hurH-ye-* (see also Eichner 1973:74), but the metrical structure is absolutely parallel.

molina.⁶⁸ We might also connect Mlr. *bileóc* 'leaves' < **bile* < **b^hel-yo-m*.⁶⁹ But the contrast in vocalism between the Greek and Celtic forms might make us hesitate to project either formation back into Indo-European itself.

The second element of the compound *μελάν-οσσο*s 'black eyed' (e.g. Il.21.252) appears to derive from the root **H₃k^w*- with the *-ye/o- suffix; cf. ὄσσε n. dual 'a pair of eyes' (e.g. Il.13.435), ὄσσομαι 'see, look, forebode', acc. sg. ὠπα 'eye, face, countenance' (e.g. Il.9.373).

The etymology of *θαλλός* 'young shoot, branch' (e.g. Od.17.224) presents some complications. We may compare *θάλος* (n.) 'sprout (metaph.)' (e.g. Il.22.87), which is only found in the nominative and accusative singular, and the verb *θάλλω* 'sprout, grow, thrive' (e.g. Hes.Op.173, h.Cer.402). We find a perfect participle *τεθηλώς*, f. *τεθῆλυα*. From the Greek evidence in isolation, we are tempted to reconstruct a root **d^heH₂l-/d^hH₂l-*. The zero grade of such a root would account for the stem *θαλ-* < **d^hH₂l-*, while the full-grade form would account for the vocalism exhibited in the perfect stem *τε-θηλ-*. If this is the correct reconstruction, then *θαλλός* should be useable as evidence for the distribution of *-ye/o-.⁷⁰

We find *ψύλλος* 'flea' in Arist.HA537⁶ etc., but it is rejected by Phryn.308 in favour of *ψύλλᾱ*, -ης 'flea' (Ar.Nu.145 etc.). If *ψύλλος* is secondary to *ψύλλᾱ*, then it may be of no concern for us. But if *y really was involved in the formation of *ψύλλος*, then the date of attestation relative to *ψύλλᾱ* is irrelevant; it cannot give us a basis for taking one form as prior to the other. We have not seen any regular process whereby a non-compounded form in -ος is formed secondarily from a feminine in -α. There does not seem to be a particularly strong reason to reject *ψύλλος* on this basis. There is a certain amount of comparative evidence for an Indo-European origin for this root. However, while many languages have similar forms, there are discrepancies that cannot be accounted for in any simple fashion. Arm. *lu* and Skt *plūṣi-* may derive from **plus-*, while Lith. *blusà* appears to come from **b(h)lus-*. Lat. *pūlex* seems to demand a root shape **pūs-*, while Gk *ψύλλα* suggests **psul-*. Perhaps Greek forms with initial ψ- come under the influence of

⁶⁸ For Cowgill's original statement, see Cowgill (1965:156, and on *φύλλον* see 157 n. 33); cf. Lejeune (1972:206). Vine (1999) restricts the operation of Cowill's Law to instances of original *o flanked by a nasal and a labiovelar, i.e. **noK^w* and **K^won*, and to the sequence **nom*. He explains the u-vocalism here in terms of a raising triggered by the palatalized geminate -ull- < *-ol'l- < *-ly-, i.e. **b^hol-ye/o-* > *φύλλον* (see Vine 1999:565).

Even without assuming Cowgill's Law, one might be able to argue that the vocalism came under analogical influence from *φύω*.

⁶⁹ There is also a formation with a dental suffix found in Toch.A *pālt* and Toch.B *pilta*. I am grateful to my external examiner for pointing out that these reflect Proto-Tocharian **p^halta* < **PelT-* or **PilT-* (where *P is any labial and *T is either *t or *d^h). The OHG form *blat* 'leaf, sheet' is unlikely to be related to the Tocharian forms, since it reflects Proto-Germanic **bladq* and there was no schwebeablaut in Indo-European (see Anttila 1969). OIr. *bláth* means 'flower' (< **blōtus*, cf. Lat. *flōs*) which is from a different Western Indo-European root **b^hlō-*.

⁷⁰ LIV² (132) reconstructs a nasal infix present for Gk *θάλλω* and Alb. *dal*, *del*; cf. Klingenschmitt (1982:172) and Lamberterie (1990:661–2). LIV² reconstructs a root **d^halH₁-/*d^hh₁H₁-* with an *a/o ablaut scheme and a root-final laryngeal (cf. *θαλῆρες* 'stout, sturdy', e.g. Il.3.26, and Arm. *dalar* 'green, fresh' < **d^halH₁-ro-s*). Under the LIV² analysis, the perfect stem would have to be explained analogically, as would *θαλλός*. The Armenian evidence for a root-final laryngeal is easy to overestimate, because -ar- was a productive suffix in Armenian, as indeed was -ερο- in Greek; see Clackson (1994:118ff.).

ψήν ‘gall insect’ (e.g. Hdt.1.193). Whatever we decide to reconstruct for the parent language, the form which Greek appears to inherit has a light sequence in the stem. But we cannot be confident that this sequence goes back to Indo-European.

It may be that Hsch. *κνυζόν· ἀέρα ἐπινέφαλον καὶ πνευματώδη* ‘cloudy and windy air’ and *κνυζοί· οἱ τὰ ὄμματα πονοῦντες* ‘those who have trouble with their eyes’ are old if they lie behind Hom. *κνυζόω* ‘become sombre’. The stem may be reconstructed as **knug-* (with a **-ye/o-* suffix) if we may compare Lith. *kniáuktis* ‘get cloudy, get a gloomy aspect’ (see further Beekes 2010:726).

It may be that *σκελλός* ‘bandy-legged’ (Sch. Il.16.234, Hsch., *EM*) beside *σκέλος* ‘thigh, leg’ allows for the reconstruction of **skel-ye/o-*. The root itself is found in a variety of other Greek formations such as *σκολιός* ‘crooked, unjust’, and the basic meaning of the root has been supposed to be ‘curved, bent’. In such a case we could perhaps compare Lat. *scelus* ‘crime, malice’ and OE *sceolh* ‘oblique, curved’, etc. (see Chantraine 1999:1013). However, the lateness of the evidence for *σκελλός* itself should make us cautious in using it.

5.3.3. Indirect Attestation

Sometimes we find examples which do not appear to involve the suffix **-ye/o-* or **-tye/o-* as such in the form in which we have them. Nevertheless, the evidence can imply the reconstruction of such a suffix for an earlier stage, even if further suffixation obscures the morphological picture somewhat.

Hom. *χοίρανος* ‘ruler, commander’ testifies to the earlier existence of a noun **kor-ye/o-*, which only survives as such in personal names like *Κοιρό-μαχος*. This is clearly an inherited formation; cf. Goth. *harjis*, Lith. *kārias*, etc. We may identify a more basic formation without the **-ye/o-* suffix in **koro-* > Lith. *kāras*, OP *kāra-* ‘army, people’. This example is clearly ancient and it may be used in our enquiry without difficulty. The only peculiarity lies in its status as the only reconstructible example of an *o*-grade **-ye/o-* formation which can be found in Greek (see n. 60).⁷¹

The verb *ἄοσσέω* ‘help, support’ (Moschus, cf. Hom. *ἄοσσητήρ* ‘helper, protector’) is probably a denominative from an unattested nominal **aossos* < **sm-sok^w(H)ye/o-*; cf. Lat. *socius*. However, as we saw in §3.5.3.2, the evidence which this example can provide regarding the potential validity of Sievers’ Law, the properties of laryngeals, and issues of relative chronology is limited, because our understanding of the details of its history are intimately related to a whole host of our own assumptions. In order to understand this example it is first necessary to settle, as far as possible, on independent grounds, questions regarding the validity and chronology of Pinault’s rule, the validity of Sievers’ Law itself more generally

⁷¹ One is tempted to see here another example of the thematization of one of Nussbaum’s *i*-stem abstract nouns with **o/*e* vocalism, which was itself built from an *o*-stem formation: **koro-* → **ko-r-i-* → **ko-r-i-o-s* > **koryos*; for the pattern, see Nussbaum (1999:399ff.). However, these *i*-stem formations are supposed to be abstract nouns built from **(C)o-* adjectives, and **koro-* is not attested as an adjective, but rather as a noun. So it is not clear that this explanation can be invoked without the additional assumption that there has been a change in the status of Lith. *kāras* and OP *kāra-* ‘army’; compare the putative substantivization of Lat. *callum* ‘hardened skin’, which, according to Nussbaum’s pattern, ought to represent an original adjective; see Nussbaum (1999:402).

at the relevant stage, and the detailed workings of Indo-European morphological principles governing the treatment of prevocalic semivowels at morpheme boundaries (insofar as this is independent from our understanding of Sievers' Law).

5.3.4. Conclusions

All of the examples discussed here need to be taken into account, to one extent or another, when we consider the behaviour of post-consonantal prevocalic *y in Greek, since they all involve a sequence *-CyV-. But not all forms can be attributed to Indo-European, some are morphologically opaque, and the confidence that can be placed in some of them is limited by the late or scanty nature of their attestation.

5.4. FORMS WITH THE *-tye/o- SUFFIX

In a few instances we are obliged to reconstruct an inherited suffix *-tye/o-,⁷² e.g. in ὀπίσσω 'backwards' and ὀπίσω 'behind' (cf. ὀπισθεν(ν) and ὀπίθεν 'behind, in the future'). The morpheme ὀπι- can be compared with Hitt. *appa*, *appan* 'after, following'. We may find an exact correspondence with Greek ὀπίσω in Hitt. *appizziya*- 'last' < **opityo*-.⁷³

It is possible that we find the same suffix in πρόσω/πρόσσω 'forward, onward, further' < **pro-tyo*-, if it is derived from the preposition **pro*. However, the formation is ambiguous: it would also be possible to suppose that **protyō* is from a thematized formation **proti*- + -ō (cf. πρός, Ved. *prāti*, etc.) with devocalization of the semivowel across a morpheme boundary. The chronology of such a process would not be self-evident, and there is no guarantee that this formation can be attributed to Indo-European itself rather than to the history of Greek.

We see a suffix -σσ- in μέτασσαι '(lambs) born later' (e.g. Od.9.221) = μεταγενεῖς from μετά 'after'. Given the parallelism with πρόσσω and ὀπίσσω, we may posit a suffix *-tye/o-. Similarly we seem to find the same suffix in ἐπίσσαι 'daughters born later' from ἐπι.⁷⁴

However, it seems unnecessary to suppose that εἰσω 'into' goes back to **en-tye/o*-, as Balles (1997:161 n. 41) suggests, since this form can be equally well understood in Greek terms as an adverb in *-ō just like ἄνω 'up, upward' beside ἀνά.

Although at this stage we are only properly concerned with the reflexes of nominal suffixes containing *-y-, it is relevant to mention Dunkel's (1982:53–5) explanation of ὑπτιως 'lying on the back, supine'. Rather than seeing in this form

⁷² For further examples in other Indo-European languages, see Balles (1997:161 n. 41).

⁷³ There may be evidence that this Hittite form should be interpreted as *appezziya*- and may result from remodelling; see Kimball (1999:211–12), cf. Melchert (1994:92).

⁷⁴ It would be possible to analyse περισός 'prodigious, beyond normal size' as being derived from περί, with the suffix *-tye/o-, rather than from περίζ 'round, about' (see §5.3.1). The form is ambiguous.

the root **swep-* ‘sleep’,⁷⁵ or the apocopated preverb ὑπ with a dental extension -τ- (which would be without parallel among derivatives from preverbs) and the suffix -ιε/ο-,⁷⁶ Dunkel argues that ὑπτιος contains a disyllabic form of the suffix **-tye/o-*. If this is the correct analysis, then perhaps this is an instance in which a form with the sequence -ιε/ο- could have evidential value for the question of Sievers’ Law; in this case, the suffix is not the incredibly productive -ιε/ο-, but the isolated -τιε/ο-.

5.5. CONCLUSIONS

We have now reviewed all the Greek evidence for post-consonantal prevocalic **y* in nominal formations in **-ye/o-*, **-y-e/o-* (sometimes from **-i-e/o-*), and **-tye/o-*. The evidence comes from a number of different morphological categories, and from a number of chronological layers. Furthermore, we must attach different levels of confidence to various categories of evidence. It is instructive to begin by looking at the degree of evidential support for the various items which we might wish to reconstruct, leaving aside, for a moment, any considerations of their morphological structure.

We find only six Greek examples of nominal formations involving post-consonantal prevocalic **y* which have comparative evidence and can be securely attributed to Indo-European:

- ἄλλος ‘another’ < **alyos* (or **H₂elye/o-*);
- πεζός ‘going on foot’ < **pedyos*;
- μέσσος ‘in the middle’ < **mé^hynos*;
- κοίρανος ‘ruler, commander’ (Κοιρό-) < **koryos*;
- *aossos* (implied by ἄοσσέω and ἄοσσητήρ) < **s^msok^w(H)yos*;
- ὀπίσσω ‘behind’ < **opityō*.

We find two forms where there is comparative evidence for a **-ye/o-* formation, but the root vocalism does not match in each language:

- ὄνειρος ‘dream’ < **H₃(e)neryos*;
- φύλλον ‘leaf’ < **b^holyos*.

There are 14 formations where there is comparative evidence for the root or stem, and the Greek evidence alone points towards a suffix involving **y*. One of the examples relies on accepting Pinault’s rule of laryngeal deletion:

- δισσός ‘twofold’ < **dik^hynos*;
- τρισός ‘threefold’ < **trik^hynos*;
- λοῦσσον ‘pith of the fir tree’ < **lowkyos*;
- φελλός ‘cork oak’ < **p^helyos*;
- σειρή ‘cord, rope’ < **twer(H)yos*;

⁷⁵ See Schwyzler (1953:270, 304).

⁷⁶ See Frisk (1973:972).

- μέλαν-οσος 'black eyed' < **H₃(e)k^wynos*;
 θάλλος 'young shoot, branch' < **d^hH₂lyos*;
 κνυζόν 'cloudy and windy air' < **knugyos*;
 ἥπειρος 'land, continent' < **āperyos* (conceivably **HeH₂peryos*);
 πελλός 'dark coloured' < **pelyos*;
 πόσος 'how much' < **k^wotyos*;
 τόσος 'so great, so many' < **totyos*;
 πρόσσω 'forward, onward, further' < **protýō*;
 ἔπισσαι 'daughters born later' < **epityai*.

We might add to these examples σκελλός 'bandy-legged' < **skelyos*, but the fact that it is only found in grammarians limits its usefulness. A similar objection might apply to ἄειρον 'unspeakable' < **n^o-wer(H₁)-ye/o-*, which is only found in Hesychius. We should also hesitate to include ψύλλος 'flea' < **psulyos*, since the variation in the shape of its root in various Indo-European languages urges caution.

There are six further examples based solely on Greek evidence, and the contribution which these can make is naturally limited in some degree by the lack of comparative support for the root or stem in question. Nevertheless, they might have some relevance to the question of chronology, and whether the Greek treatment of semivowels continued an Indo-European pattern:

- ξύνος 'public, common' < **ksunyos*;
 σπεῖρον 'piece of cloth' < **speryos*;
 κύπειρον 'galingale' < **kuperyos*;
 βυσσός 'depth of the sea' < **buth^hynos*;
 περισσός 'prodigious, beyond normal size' < **perikyos* (or **peri-tyos*);
 μέτασαι '(lambs) born later' < **metatyai*.

We might add to these examples κάρταλλος 'basket with a pointed bottom' < **kartalyos*, but its late attestation might make us hesitant to rely on this evidence. Similarly, ἄγειρος 'black poplar' < **aygeryos* must be counted as less than certain, because *-ye/o- is deduced by comparing ἄγερος, which is a hapax.

The only other evidence for such formations can be used only if we accept certain supplementary assumptions, as already discussed:

- φοινός 'blood-red', if it is from **g^{wh}onyos*;
 χοῖρος 'young pig', if it is from **g^horyos*;
 κυλλός 'club-footed etc.', if it is from **k^wol(H₁)yos* or **kolyos*.

What becomes immediately apparent, upon reviewing the evidence, is that light sequences precede *y in the overwhelming majority of these examples. Even if we only accepted the evidence of formations which are attested early and for which there is a measure of comparative support, for the root, stem, or *-y-e/o- / *-ye/o- / *-tye/o- formation itself, we still find 21 examples of light sequences preceding *y, but only 1 example of a heavy sequence: λοῦσσον.

If we allow ourselves to include late attested formations with comparative support, then the proportion is 23 to 1, and if we include also the examples which are based purely on Greek evidence of whatever degree of antiquity, then the proportion is 30 to 1. If we allow every example which we have reconstructed, despite any reservations about the quality of the evidence or the underlying assumptions, then the proportion is 36 to 1.

Insofar as we allow ourselves to proceed without demanding word equations, the pattern of attestation at an early stage in Greek seems very clear. We find light sequences before **y*, and, with the exception of *λοῦσσον*, heavy sequences are excluded. In other words, we have a distribution which very nearly conforms with Sievers' Law.

This substantial distributional skew in the metrical structures which precede the segmental sequence **ye/o*—whatever its morphological make-up may be in individual cases—is difficult to explain in any other way. No morphological or lexical feature can account for this pattern; these forms do not adopt a consistent root vocalism which could account for these light sequences. This is not a wider feature of Greek or even of the lexical classes from which the forms with these suffixes are drawn. If we look at the *-ie/o-* adjectives, whose lexical constituency is in all important respects the same as that of the **-ye/o-* suffix, we find no shortage of clear examples of heavy sequences preceding the disyllabic suffix. In Homer the suffix *-ie/o-* is preceded by light sequences 149 times and heavy stems 138 times. This fairly balanced distribution may or may not reflect the ancient behaviour of the **-iye/o-* suffix, but it can at least serve to show that the distribution of stem weight among the forms with **ye/o* is *atypical*.

Sievers' Law can explain the paucity of heavy stems among the **-y(-)e/o-* and **-tye/o-* nominals, but only if we accept an alternative explanation of *λοῦσσον*. Such an alternative lies readily to hand if we regard the devocalization of post-consonantal prevocalic semivowels before a morpheme boundary as an ongoing process within Greek, and accept that **lowk-y-e/o-* (> *λοῦσσον*) only arose out of **lowk-i-e/o-* after Sievers' Law ceased to operate in Greek. This seems perfectly possible, but on the same grounds one might exclude from consideration *τόσος*, *πόσος*, *πελλός*/*πέλλος*, and any number of other potential examples ostensibly built with **-y(-)e/o-*, but where the Indo-European antiquity of the non-syllabic **y* cannot be guaranteed by an external word equation. Therefore, one could reasonably argue that to single out *λοῦσσον* risks begging the question.

Nevertheless, it is by no means impossible to make a principled judgement with regard to the overall pattern of attestation. Insofar as a diachronic process of devocalization may have interfered with whatever original distribution of semivowel syllabicity there might have been, we can only hope to reach a judgement about the overall distribution rather than the history of individual examples. Some individual examples which comply with Sievers' Law might well be secondary and result from subsequent devocalization processes, but the overall pattern is explained in the most economical fashion if we assume that Sievers' Law operated at an early stage. Our overall account of the facts is made simpler by understanding the sole exception *λοῦσσον* as a later development.

Part III

Verbal Categories

Preliminary Considerations

6.1. INTRODUCTION

We have seen that there is evidence supporting an Indo-European alternation between **i* and **y* in the post-consonantal prevocalic environment, and that the weight of the preceding sequence is sufficient to explain the variation in the Greek comparative and the **-ye/o-*, **-y-e/o-*, and **-tye/o-* nominals, with few exceptions. It is surprising, therefore, to find in Greek two morphological categories in which little or no variation can be detected. The first of these we have already discussed in some detail: the **-ya* feminine, where the only variation in syllabicity is limited to a few isolated forms with *-ia*: πόντια ‘mistress’, μία ‘one’ < **smia*, and -τρία the feminine agent suffix; see §3.5.1. Given that the nominative singular has **-ya* from **-iH₂*, the behaviour of the **-ya* feminines cannot be used to decide the question of whether Sievers’ Law functioned in Greek, though, as we suggested, they may help us to establish the chronology of the loss of any such distributional rule. The second invariant formation is the large class of verbs formed with the **-ye/o-* present-stem suffix.^{1,2}

¹ Some reconstructions of Indo-European include a category of *i*-presents beside **-ye/o-* presents. For example, Jasanoff (2003:91ff.) derives a class of Hittite verbs with stems in *-i-* from a Proto-Indo-European class of *i*-presents with either **e/zero* or **e/ē* root ablaut, formed exclusively from roots of the shape **C(C)eH-*; cf. Oettinger (2001:80–3) and Hajnal (1999:19ff.) for alternative approaches to the Anatolian evidence, and Schrijver (2003) on Celtic and Italic evidence. A certain proportion of Greek **-ye/o-* presents, or perhaps all of them, could represent thematizations of such **i*-presents. However, *i*-presents leave no obvious traces in Greek, Germanic, and Indo-Iranian—the languages that exhibit reasonably clear Sievers’ Law effects. Quite possibly every instance of such formations was thematized. But there are no obvious principled grounds for dividing **-ye/o-* verbs from **i-* verbs in Greek, and the distinction will not play a role in this analysis.

Different presuppositions are involved in Klingenschmitt’s (1978) idea that **-ye/o-* was a zero-grade form of causative **-eye/o-*, in e.g. Lat. *sōpiō* ‘cause to sleep’. Beekes (2011:255–6ff.) considers the common source of the **-ye/o-* and **-eye/o-* suffixes to be an original ablauting suffix **-ey-/*-i-*. It is not obvious that such possibilities should affect our approach to the problem of Sievers’ Law.

² It is sometimes claimed that we should also posit a suffix **-H₁ye/o-*. If laryngeals were always consonants in the first instance, then exponents of such a suffix might provide evidence on the question of the weight contributed by laryngeals in potential Sievers’ Law sequences. LIV² reconstructs ‘essive’ **-H₁ye/o-* formations for 99 different consonant-final roots. But the relevance of this category to Greek is limited, since only three of the putative examples have a Greek reflex: θάρσέω ‘be bold’ < **d^hys-H₁ye/o-* (LIV² 147), ἀνθέω ‘blossom’ < **H₂nd^h-H₁ye/o-* (LIV² 266), and ῥίγέω ‘shudder’ < **sriHg-H₁ye/o-* (LIV² 588). Furthermore, these examples are not secure. The root of θάρσέω is attested in Indo-Iranian, Germanic, and Slavonic, but only Greek has the supposed **-H₁ye/o-* formation; we could equally well suppose a denominative from *s*-stem θάρσος, -θαρσής. Only Greek has the root of ἀνθέω

The lack of alternation among the **-ye/o-* verbs is far more difficult to explain, and discussion of this formation will be the main subject of the rest of this book. In the present chapter we will consider, in detail, the nature of the theoretical difficulties presented by the non-alternating property of this suffix (§6.2). In particular, we will consider the question from a comparative perspective, looking at whether there is any significance in the fact that that *-ya-* verbs of Vedic also fail to show any alternation (§6.3).

As a preliminary to an investigation of the Greek **-ye/o-* verbs, it proves necessary to take an overview of the status of the Greek evidence in this category (§6.4), and to eliminate from our enquiry a large number of patently secondary formations, in some cases built with secondary suffixes which merely resemble reflexes of **-ye/o-* (§6.5). A certain number of examples which look as though they might be **-ye/o-* verbs are etymologically totally obscure, and are, in consequence, difficult to use for our purposes (§6.6). In other instances, although a case could be made for the reconstruction of a **-ye/o-* verb, such an analysis raises insuperable problems of a phonological nature (§6.7). We will also need to set aside a large number of categories of ambiguous evidence, which, for a variety of reasons, prove inconclusive for our attempts to understand the properties of the **-ye/o-* suffix (§6.8). This preliminary work will allow us to devote the next chapter to a consideration of genuine and pertinent examples of **-ye/o-* verbs in Greek.

6.2. FAILURES OF ALTERNATION

Among **-ye/o-* verbs we consistently find what appears to be the reflex of non-syllabic **y*, regardless of the weight of the preceding sequence.³ For example, we find φυλάσσω ‘guard’ from **p^hulāk-yō*, but we also have σκῆπτوماί ‘lean on a staff’, apparently from **skāp-yo-mai*, and not the predicted **skāp-iyō-mai*. We find πτῶσσω ‘shrink from’ and not **ptōk-iyō*, πλῆσσω ‘strike; set in motion’ and not the expected **plēk-iyō*, etc. Even leaving aside the lack of any real alternation, it is highly unusual that the form of this suffix with a *non-syllabic* semivowel

as a verbal root (cf. Ved. *ándhas-*), and it seems better to treat it as a denominative after the *s*-stem ἄνωθος, -ανθήζ (see Tucker 1990:64). Equally, ῥιγέω could be built from the *s*-stem ῥιγος, -ρριγής, and need not be inherited.

We cannot use the evidence of these poorly supported *-έω* formations to draw any conclusions about the contribution of laryngeals to the weight of Sievers’ Law sequences in Greek. On the other hand, if we assume Pinault’s rule (for which see §3.8.1) we would expect **-C-H₁ye/o-* > **-C-ye/o-*, whose Greek outcome would be indistinguishable from a simple **-ye/o-* verb, in which case there could be many hidden examples in Greek. But since there is no reliable mechanism for identifying them and investigating their properties, it is difficult to see how we could pursue this question in any meaningful way.

³ Perhaps connected with the **-ye/o-* verbs, Hom. ἱδῖω ‘sweat’ is apparently from **swid-iyō*; cf. Skt *svidyate* and OHG *swizzit*. Unlike other identifiable *-iō* verbs, there is no corresponding *i*-stem noun from which it can be derived, merely thematic ἱδός. So this form could arguably contain an **-iye/o* verbal suffix following a heavy sequence. However, there are a number of peculiarities here, not least the vowel length in the root. The comparative evidence leads us to expect a short vowel. Given the uncertainties, it seems unlikely that this solitary example truly represents an ancient **-(i)ye/o-* present. See Tucker (1990:401–2) for a brief discussion, and Beekes (2010:578) with literature. For a possible explanation of the root vocalism, see Rix (1985:342).

should have survived and furthermore become highly productive, if a form with a syllabic semivowel once existed alongside. We would expect that after palatalization and the loss of Greek **y*, any forms having **-iye/o-* would be morphologically more transparent than the reflexes of forms with **-ye/o-*. Consequently, we would have expected the predicted allomorph **-iye/o-* to spread beyond its original scope rather than the reflexes of **-ye/o-*. Clearly, the lack of syllabicity variation and the exclusive survival of the non-vocalized forms of these suffixes require some kind of explanation, if we think that the alternation of **i* and **y* was originally determined phonotactically in the comparative suffix **-yos-/*-iyos-* and in the relevant nominal categories.

It would have been perfectly possible for syllabicity alternations to have arisen in, and remained confined to, specific morphological categories in Indo-European.⁴ But we must account for the contrast between the situation in Germanic, where the **-ye/o-* verbal category does exhibit the alternation, and the formation in Vedic and Greek, where no alternation occurs.

6.2.1. A Generalization of **-ye/o-*?

If we think that there was an **-iye/o-* suffix variant in Indo-European, then we might argue that there has been some kind of Greek generalization of the **-ye/o-* allomorph or of its reflexes, displacing the putative **-iye/o-* allomorph. The parallel absence of a stable **-iya-* allomorph of the verbal suffix in Indo-Iranian would in that case require a separate explanation—a point to which we will return.

Since, far from simplifying the morphology of **-ye/o-* verbs, this supposed Greek generalization complicates matters considerably in the long run (giving rise to diverse reflexes *-πτε/o-*, *-σσε/o-*, *-ζε/o-*, *-αινε/o-*, etc.), any such displacement of the putative **-iye/o-* suffix would have to have taken place *prior* to the loss of post-consonantal **y*. This is the only probable chronology. In this way, we could account for the absence of the allomorph **-iye/o-*, which would have been the more transparent alternative *after* **y* disappeared. After all, generalizations occurring at that earlier time could not have taken the later loss of **y* into account.

If we were to adopt the original assumptions of Sievers' Law, rather than those of Seebold (1972:340–1) or Schindler (1977:56–65), then we would expect Indo-European to have had a complementary distribution of **i* and **y* (at least word-internally), and Greek could have inherited such a distribution. If there were once verbal suffixes **-iye/o-* and **-ye/o-* in a complementary distribution, then it is difficult to see what basis there could be for generalizing one over the other until that complementary distribution had broken down for phonological reasons. Furthermore, any generalization of the **-ye/o-* allomorph would have to be motivated in some fashion. Otherwise it is unclear why the supposed **-iye/o-* alternant should have been eliminated so comprehensively. There is nothing inherently objectionable about verbs in **iye/o-*; after all, we *do* find verbs in *-ιε/o-* (< **-i-ye/o-*) arising among the denominatives from *i*-stems. Explaining this supposed generalization of **-ye/o-* is not straightforward.

⁴ For this view of Sievers' Law, see Sihler (1974–5).

6.2.2. Kuryłowicz and Nagy

Kuryłowicz (1956:171 n. 12, 341) suggested that the distribution of **i* and **y* was disrupted at an early stage, through the loss of intervocalic laryngeals. As we argued earlier, this should have given rise to new sequences of syllabic **i* followed by a vowel: **CiHV* > **CiyV* regardless of what precedes. The net effect of this would be to disturb any complementary distribution of **i* and **y*.⁵ We can well imagine that this development would allow the extension or indeed the generalization of the syllabic alternant (as we may see in the *-iye/o-* nominals and in the comparative). But these developments could not in themselves explain the generalization of **y* in the **-ye/o-* verbs, because it is far from clear that the encroachment of **i* on the environments exclusive to **y* should license the encroachment of **y* on the environments exclusive to **i*.

A similar problem arises if we operate with Seebold's (1972:340–1) system; if both **i* and **y* occurred after light sequences and the only prohibited Indo-European configuration was a heavy sequence followed by **y*, then it is difficult to see how this scenario would provide favourable conditions for the spread of the suffix **-ye/o-* and the elimination of the supposed **-iye/o-*, before or after the loss of intervocalic laryngeals.

We could perhaps understand the emergence of complete confusion between these alternants, but not the wholesale generalization of the **-ye/o-* allomorph without some additional factor in its favour. So this scheme, on its own, does not seem to explain the development of the **-ye/o-* verbs in Greek.

Nagy (1970:4ff.) adopted Kuryłowicz's theory concerning the breakdown of Sievers' Law. He argued that, initially, **i* would have spread at the expense of **y*. The semivowels would have been redistributed according to a new criterion: whether or not they resided in a productive formation (Nagy 1970:5–8). According to this theory **i* should be found in all productive suffixes. This does not explain the **-ye/o-* verb suffix either, since it is productive, yet it has **y* exclusively. Nagy went on to argue that Greek sound changes interfered with the distribution of **i* and **y* for a second time. Consonants before **y* were geminated, allowing **y* to be found after heavy syllables: i.e. **-VCy-* > **-VCCy-* (Nagy 1970:102ff.). This supposed change allowed **y* to be spread to other environments; it could be generalized in productive suffixes once again. This is supposed to be the explanation for the apparent productivity of **-ye/o-*.

Leaving aside the rather counter-intuitive analogical mechanisms invoked here, there are two concrete problems with this line of reasoning. Firstly, the studies which Nagy cited⁶ in support of his reconstruction of a stage **-VCCy-* do not in fact suggest such a development. Rather a sequence such as **-ky-* is thought to develop directly into a palatalized geminate **-k'k'-* (e.g. Stang 1957:28), presumably by a process of assimilation. It is difficult to see why a sequence **-k'k'y-* should be assumed at any stage. Secondly, as we have seen in our study of the **-yos-/*-iyos-* comparatives, Greek actually seems to reflect a Sievers' Law distribution. If Greek is supposed to go through two rounds of wholesale generalization, first of **i*, then

⁵ We should note that the breakdown of Sievers' Law was not an inevitable consequence of the emergence of new **-iyV-* sequences (see §3.3).

⁶ Diver (1958:8ff.) and Stang (1957:28ff.).

of **y*, there should be no trace left of such a pattern, if it is inherited,⁷ and if the pattern were a Greek innovation, Nagy's scheme would not be able to explain how it arose.

This leaves us with the original puzzle. Why do the **-ye/o-* verbs show no sign of variation? Furthermore, why do we only have the opaque and ununified set of products from **-ye/o-*, rather than a single suffix **-iye/o-*, or even a trace of such a suffix?

6.2.3. The Influence of Other Categories

We might attempt to invoke morphological or analogical explanations.

6.2.3.1. Influence from the Aorist?

It is conceivable that the close relationship between **-ye/o-* presents and *s*-aorists might have helped to displace putative **-iye/o-* presents, e.g. **plēkiō* : *ἐπληξα* → *πλήσσω* : *ἐπληξα*. But, in a sense, such an explanation simply begs the question. It remains unclear why **-iye/o-* presents were not equally well entrenched in the Greek verbal system in the first place, if there was once a rule-governed alternation of **i* and **y*.

6.2.3.2. Influence of the Feminine?

We saw earlier (§3.5.1) that **y* probably arose by sound change even after a heavy sequence in the nominative singular of the **-iH₂* feminine formation. It seems very likely that this would have served to disturb any potential complementary distribution of semivowel syllabicity, but it is far less clear that this would help to explain the putative displacement of verbal forms in **-iye/o-*.

Firstly, there is no particular evidence for a special link between the **-ya* feminine formation and the **-ye/o-* verbs in lexical constituency, in morphological characteristics, or in any respect other than their lack of syllabicity alternation. There is no reason to suppose that the **-ya* feminines influenced the development of the **-ye/o-* verbs directly.

More importantly, the nature of the possible generalization of **y* in the feminine formation is very different from that we would have to posit for the **-ye/o-* verbs. We can imagine a synchronic basis for the elimination of *paradigmatic* syllabicity alternation in the feminine formation: if the phonological conditions ever existed for an **-iyeH₂-* alternant to arise in the oblique cases, then we could understand why **y* might be generalized from the nominative singular. Under Sievers' or Seebold's assumptions, there would have been no paradigmatic alternation between **i* and **y* in the verbal formation; in synchronic terms, after the breakdown of Sievers' Law, we would simply observe different verbs with different suffixes, some with a suffix **-ye/o-* (such as **pek^w-yō* > *πέσσω* 'ripen, cook'), others with **-iye/o-* (unattested). After the automatic alternation of semivowels had ceased (for whatever reason), it is very difficult to see what synchronic basis there could

⁷ See the criticisms of Ruijgh (1975:92).

have been for the putative thoroughgoing replacement of forms with **-iye/o-* by forms with **-ye/o-*.

6.2.4. Problems with Our Assumptions

It seems clear that with the assumptions involved in Sievers' Law or Seebold's formulation, we reach an impasse. Greek unexpectedly fails to show any trace of an **-iye/o-* alternant in the verb, let alone a generalization of **-iye/o-*. This state does not seem to be the result of a generalization of **-ye/o-*. Under these circumstances we have to conclude that there can have been no suffix variant **-iye/o-* competing with **-ye/o-* prior to Greek palatalization and the loss of **y*, and that this was an inherited state of affairs.

6.2.4.1. Evidence for Schindler's Formulation?

Under Schindler's formulation of Sievers' Law, the non-alternation of the verbal suffix **-ye/o-* can receive a different explanation.⁸ According to Schindler's version of the rule, we would only expect semivowel syllabicity alternation in the final syllable of the word. This would have the effect of creating paradigmatic alternations in all the suffixes to which Sievers' Law might have applied, and, in this particular case, between a suffix **-iye/o-* and **-ye/o-* in verbs containing stem-final heavy sequences. The first person singular of the present and various persons in the imperfect would have been the only contexts where **-iye/o-* could surface. The generalization of **-ye/o-* could simply be seen as the result of paradigmatic levelling.

However, this does not really constitute a point in favour of accepting Schindler's assumptions, tempting though that may be for our immediate problem. His formulation has only a slim empirical basis (see §2.7.4) while being rather too powerful for comfort: in theory, all the suffixes relevant for Sievers' Law would have shown paradigmatic alternation at an early enough stage, but there is no consistent rationale for explaining why some suffixes generalized a constantly syllabic semivowel; others, a constantly non-syllabic semivowel; and others continued to allow rule-governed syllabicity alternation. In short, this approach serves to shift the area in which the solution should be sought, rather than actually solving the problem. Furthermore, such an account is unlikely to prove very convincing, since it is difficult to see how it might produce predictions which would be, in principle, falsifiable. We shall see that a more satisfying explanation can be found by investigating the formation and history of the **-ye/o-* formation in detail.

6.2.5. Problems and Approaches

The challenge we face is to explain the lack of the expected suffix alternant **-iye/o-* in Greek. This fact cannot be treated in isolation from the lack of a regular verbal

⁸ I thank Prof. Alan Nussbaum for pointing this out to me during a very useful discussion of Sievers' Law phenomena.

suffix **-iya-* in Vedic. It would be tempting to conclude straight away that the absence of a disyllabic allomorph goes back to Indo-European itself, were it not for the fact that Germanic shows an alternation between **-ye/o-* and **-iye/o-* verbs. It might be plausible to suppose that this alternating suffix was an innovation, given the regularity of Sievers' Law in Germanic. But this would have the further consequence of undermining a considerable portion of the evidence which prompted the reconstruction of Sievers' Law for Indo-European in the first place. Even leaving aside the Germanic evidence, the invariance of the Greek and Vedic suffix needs to be reconciled with the alternations observed in other morphological categories within these languages.

Three obvious Indo-European solutions lie to hand. Firstly, we might suppose that Sievers' Law did not apply in Indo-European; the evidence for semivowel syllabicity alternations could result from innovations in individual Indo-European languages, and these innovations could have been category specific. This possibility should be borne in mind, in the event that other more general explanations prove unacceptable.

The second possibility would be to develop Sihler's (1974–5) idea that syllabicity alternations in Indo-European were category limited in the first instance: if we were to suppose that Sievers' Law simply did not apply to the **-ye/o-* suffix in Indo-European, then the behaviour of this suffix in Vedic and Greek would be less surprising.⁹ The Germanic **-iye/o-* verbs would have to represent an innovation on this analysis. In order to demonstrate this, we would need to accept the evidence for Sievers' Law in other morphological categories, and demonstrate that ancient and convincing verbal examples violate Sievers' Law.

There is a third possible explanation, which deserves detailed exploration. If we were to adopt Sievers' or Seebold's (1972) hypothesis that prevocalic **y* was prohibited after a heavy sequence no matter which morphological category might be involved, then we would have to argue that all consonant-final sequences occurring before the **-ye/o-* suffix were light. This is by no means a straightforward proposition, and requires justification if it is to be taken seriously.

It has been suggested that at an early stage there were morphological reasons for consonant-final stems tending to constitute light sequences.¹⁰ If **-ye/o-* presents only formed from the zero-grade of verbal roots, then light sequences would tend to result. However, there are two main problems with this suggestion in the context of the Greek and Vedic evidence. Firstly, not all **-ye/o-* formations are built from zero-grade roots, e.g. *θείνω* 'strike' < **g^{wh}en-ye/o-*, *τείνω* 'stretch' < **ten-ye/o-*, *λεύσσω* 'see' seemingly from **lew^k-ye/o-*, *κόπτω* 'strike' < **kop-ye/o-* etc.; Ved. *pácyate* 'become ripe' < **pek^w-ye/o-*, *náśyati* 'vanish' < **nek^h-ye/o-*, *háyati* 'delight in' < **g^her-ye/o-*, *médya-* 'be/become fat' < **masd-ye/o-*, etc. Secondly, formations based on Indo-European zero grades do not always constitute or yield sequences which were light at all stages and on all analyses,

⁹ We should note that Sihler (1974–5) did not in fact regard category limitation of Sievers' Law as the explanation of the invariant nature of verbal **-ye/o-*. Instead, he followed Seebold in noting that the syllable preceding Vedic *-ya-* was usually light. However, this view requires investigation, since it is by no means the case that such verbal roots were *always* light.

¹⁰ Notably, Seebold used morphological arguments to explain phonological properties in several Vedic categories, but the most relevant instance is in relation to the class IV verbs and the *-ya-* passive formation (see Seebold 1972:288).

e.g. Myc. <wo-ze> (possibly = [worzei]) < *w^hg^h-ye/o-, πλῆσσω apparently from *plH₂k-ye/o- etc.; Ved. *júryati* ‘grow old’ < *ǵrH₂-ye/o-, *pr̥chyámānaḥ* ‘be questioned’ apparently from *p^hr̥k-sk̥-yo-, *sívyatu* ‘sew’ < *siHw-ye/o-, etc.

It is clear that the invariant nature of the *-ye/o- suffix poses a problem for our understanding of semivowel behaviour in both Greek and Vedic, and that the evidence of both languages could offer an insight into the reasons which might lie behind this unexpected behaviour. For this reason, we cannot confine our attention to the Greek evidence alone in this instance. We will begin with a fairly brief survey of the Rigvedic primary -ya- verbs with a consonant-final stem, before we embark on a much more detailed look at the *-ye/o- verbs inherited by ancient Greek, and those that developed in the history of Greek. This twin approach should allow us to establish the nature of the verbal formation which Greek inherited from Indo-European: the forms we can reconstruct; the ablaut patterns in the root; and the way in which inherited Indo-European root structures and morphological patterns relate to our understanding of Sievers’ Law.

6.3. THE -ya- VERBS IN VEDIC

Here we shall survey the -ya- verbs found in the Rigveda. Given the productive nature of this category, it is likely that some examples constitute innovations in the history of Indo-Iranian and in Indo-Aryan. But an inclusive approach seems best in the first instance.

Since the behaviour of intervocalic semivowels is generally not in doubt, we need not consider verbs in which the *-ye/o- suffix was added to a root or stem which ended in a syllabic segment; these would be expected to exhibit a non-syllabic suffixal *y under any analysis. It is more important to consider examples in which *-ye/o- was added to consonant-final roots or stems. Seebold (1972:287–9) collected the evidence for -ya- verbs in the Rigveda with an *overt* consonant-final stem. However, his approach was not etymological, but based on surface phonology. Furthermore, he did not look at a large number of originally laryngeal-final roots, and these also require investigation.¹¹

6.3.1. Formations Excluded

We will not consider the behaviour of Vedic denominative verbs in any detail here, partly in order to keep this study tractable, but also for principled reasons. The range of consonant-stem denominative -ya- verbs is rather limited. Where nominal stems ended in a resonant, we would have expected the resonant to be syllabic, and in consequence the semivowel in the suffix would effectively be intervocalic. We probably see this in *vr̥ṣāyate* ‘act like a bull’ < *vr̥sn̥-ya-te (see Tucker 1988). On this analysis the development *vr̥ṣānyāti* ‘be lustful’ would be

¹¹ The comprehensive and useful analysis of Vedic ya-verbs presented by Kulikov (2012) was not available to me before the final version of this work was submitted to the press. I have added a few supplementary notes taking into account some of his observations, though a serious engagement with his work is unfortunately not possible.

secondary and analogical. Similarly, it does not seem likely that denominatives of the Classical Sanskrit *putrīyati* type can represent the direct outcome of Sievers' Law. They could perhaps represent some secondary extension of Sievers' Law, but at an early enough stage we would have expected **putr-ya-ti* and not a heavy stem **putr-īya-ti* (cf. n. 14).

We find a considerable number of *s*-stem denominatives in Vedic and Avestan, e.g. Ved. *namasyāmas* 'we reverence' from *nāmas-* (n.) 'reverence' and OAv. *nəmaxiiāmahī* 'we reverence' from *nəmah-* (n.) 'homage, reverence' (see Tucker 1988:103–4; 2004:548). In none of the attested examples do we find a heavy sequence preceding *-ya-*.

The only other examples in which **y* might be expected to show the requisite post-consonantal prevocalic environment would be denominatives with stop-final stems. But there are only two examples in the Rigveda: *bhiṣajyá-* 'heal' and *iṣudhya-* 'implore', both of which have a light sequence before the suffix.

I will also leave aside the *grbhāyāti* deverbative class, notably discussed by Schrijver (1999), which goes back to forms with the **-ye/o-* suffix added to a nasal infix formation **g^hr^bh^h-n-H₂- + *-ye/o-*, cf. *grbhñāti* 'grasp'. All such examples would involve a light sequence at the relevant stage for morphotactic reasons.¹²*

6.3.2. Primary Formations

For the most part, we find an invariant *-ya-* suffix preceded by a light verbal root or a vowel-final root. However, we find very rare examples of verbs with *-īya-* after a light stem (the two instances of the participle *fjiyat-* 'stretch out', beside finite *fjiyate*)¹³ and several examples of heavy stems preceding *-ya-*.¹⁴ It is not sufficient simply to list the relevant forms and note the weight of the sequence preceding the suffix in Vedic. An etymological approach is clearly required, since the weight of some sequences changed in the history of Indo-Iranian, and understanding the contribution of laryngeals to the weight of potential Sievers' Law sequences is not straightforward. It is a drawback of Seebold's (1972:287–9) study of these forms that he provided almost nothing in the way of an etymological overview of the various attested forms. Since we are attempting to understand a potentially

¹² This formation is notable because the nasal infix has been vocalized, which goes against a general pattern whereby the nasal infix is non-syllabic no matter what the nature of the surrounding environment may be (see Schindler 1977). It may be that further investigation of the *grbhāyāti* class would lead to a better understanding of the nature of the mechanism enforcing the non-syllabic nasal infix, be it analogical or phonological, *einzel sprachlich* or inherited.

¹³ Kulikov (2012:316–19 and 518) has doubts about these participles, but points out examples of the disyllabic suffix *-īya-* in the imperfect of *āsyati* 'throw'.

¹⁴ I take it that *kriya-* 'make, prepare, accomplish', *dhriya-* 'stay', *bhriya-* 'be brought', and *mriya-* 'die' represent the outcomes of **k^wr-ye/o-*, **d^hr-ye/o-*, **b^hr-ye/o-*, and **mr-ye/o-* (see §6.3.2.2, p. 233), whether as direct phonological outcomes or a consistent morphological replacement. I do not regard these verbs as showing evidence of Lindeman's or Edgerton's word-initial syllabicity alternations, in part because the examples of Lindeman's Law are so unsystematically preserved in the Rigveda that it would be a little odd if this whole class preserved it so well. Secondly, there seems to be enough evidence to say that resonants between a consonant and *y* would have been syllabic in Indo-European (see e.g. Chapter 3, n. 39), so these forms should not have constituted a heavy sequence for Lindeman's Law in the first instance.

Indo-European phonological pattern, it is necessary to look at the origin of all these verbs. This will allow us to better understand the overall phonological properties of the various exponents of this category.

A consideration of the morphological properties of the various formations involved may help to provide more fundamental explanations for the invariance of **-ye/o-*. We have a series of class IV presents and a number of verbs with the *-yá-* passive suffix.¹⁵ A couple of different modes of formation can be distinguished. Usually a *-ya-* verb was formed from a zero-grade root, and such formations will be discussed presently. However, we should first deal with the relatively limited class of Rigvedic examples with the reflex of a full-grade root.

6.3.2.1. Full-Grade Formations

A full-grade **-ye/o-* formation is sometimes posited for Indo-European: LIV² reconstructs 50 such formations, though not all of these are attested in Vedic. If there was a productive category of this kind, it is reasonably clear that many common Indo-European root shapes would have yielded heavy sequences for Sievers' Law before the **-ye/o-* suffix; if we assumed that Sievers' Law in one of its various formulations were correct, it would then be something of a mystery that we find practically no evidence for **-iye/o-* verbs in Greek and Vedic.

However, it is far from certain that a fully fledged morphological category of this sort needs to be posited from the point of view of the Vedic evidence. Some full-grade forms certainly existed, but they may be motivated in phonotactic rather than morphological terms. Indeed, in roots inherited from Indo-European with the shape **TeT-* (where *T* represents an Indo-European stop), a full-grade root is the norm; it is perhaps understandable that a zero-grade root was disfavoured where it would have yielded a phonological configuration **TTye/o-* word-initially. There are a number of class IV examples:¹⁶

pácýate 'ripen' < **pek^w-ye/o-* (**pek^w-*; see LIV² 468, EWAia II 64);¹⁷

pádyate 'fall, etc.' < **ped-ye/o-* (**ped-*; see LIV² 458, EWAia II 76–7);¹⁸

pásýati 'see' < **spek^h-ye/o-* (**spek^h-*; see LIV² 575–6, EWAia II 107–8).

¹⁵ Among non-denominative *-ya-* verbs with middle endings and stable accentuation, those with an accent on the suffix may be classed as passive, while those with root accentuation are never passive and are treated as class IV presents. Those forms with fluctuating accent will be noted in footnotes. See Kulikov (1997, 1998) for extensive discussion.

¹⁶ It may be possible to include in this category *pátyate* 'rule, possess' < **poty-e/o* (?); cf. YAv. *paithiieiti* (see EWAia II 72). This verb could conceivably derive from the Indo-European nominal stem **poti-* 'master'. Either it is denominative, though forming a denominative simply by adding the thematic vowel is not expected, or else the nominal stem **poti-* and this verb are ultimately derived from the same root. Whether or not this is a **-ye/o-* verb as such, it is indistinguishable from a **-ye/o-* verb in synchronic terms in Vedic.

¹⁷ I shall not list the passive *pacyáte* 'is cooked' separately from the anti-causative *pácýate* 'ripens', since there is no difference between these in metrical structure. Similarly, I will not comment further on the distinctions to be made between *múcyate* (RV) and *mucýate* 'become free' (AV, ŚB); *púryate* 'become full' (RV, TB, etc.) and *pūryáte* (MS, ŚB, etc.). For a detailed discussion, see Kulikov (1998).

¹⁸ In general and where applicable, I give Indo-European verbal roots in the form under which they are listed in LIV², and where I depart from this procedure, it will be noted. Here LIV² reconstructs **ped-ye/o-*, but descriptively the root is full grade, and it seems better to represent it as such. After all, LIV² reconstructs **spek^h-ye/o-* with a true full-grade vowel, and it is hard to make a principled distinction between these cases.

In another case a full-grade vowel is found in a root where a similarly awkward-seeming obstruent cluster would have arisen, had a zero-grade root been used:

jasya- ‘disappear’ < $*(s)g^w esH_2\text{-}ye/o\text{-}$ ($*(s)g^w esH_2\text{-}$; see LIV² 541–3, EWAia I 581–2);¹⁹ compare *dáśyati* ‘waste away’—possibly with a dissimilation of *das-* < *jas-* (see LIV² 541–2 esp. n. 2, EWAia I 710–11).

It seems plausible that the full-grade vowel in $*(s)g^w esH_2\text{-}ye/o\text{-}$ could be explained by noting the difficulties which might have been presented by a complex obstruent cluster in a hypothetical zero-grade form $*(s)g^w sH_2\text{-}ye/o\text{-}$.²⁰

We also find several passives in -ya- with full-grade root vocalism in Indo-European roots with the shape $*TeT\text{-}$:

tapyā- ‘heat’ < $*tep\text{-}ye/o\text{-}$ ($*tep\text{-}$; see LIV² 629–30, EWAia I 624);

dabhyā- ‘be deceived’ < $*d^hebh\text{-}ye/o\text{-}$ ($*d^hebh\text{-}$; see LIV² 132–3, EWAia I 694–6).

We seem to find a secondary Vedic root *dad-*, resegmented from a reduplicated form of the verb *deH₃-* ‘give’ with the -ya- passive suffix:

dadyā- ‘be offered’ ← $*de\text{-}dH_3\text{-}$ (see EWAia I 715 under $D\tilde{A}^1$).²¹

In some class IV examples the full-grade vocalism may be secondary in nature:

náśyati ‘vanish’ < $*nek\text{-}ye/o\text{-}?$ ($*nek\text{-}$; see LIV² 451–2, EWAia II 28–9);

náhyati ‘bind’ < $*Hned^h\text{-}ye/o\text{-}?$ ($*Hned^h\text{-}$; see LIV² 227, EWAia II 31–2).

For *náśyati* LIV² (452 n. 5) supposes that originally there was a zero-grade $*aś\text{-}ya\text{-}$ < $*n\hat{k}\text{-}ye/o\text{-}$ which was remodelled after full-grade forms which preserved the word-initial nasal (i.e. *naś-*). Under this analysis the same process would have to be supposed for the Old Avestan cognate *nasiieiti*. The same explanation is offered for *náhyati*: LIV² (227 n. 2) supposes an original zero-grade formation $*Hnd^h\text{-}ye/o\text{-}$, in which case one has to assume restitution of the initial nasal from other full-grade forms.

A similar explanation may be posited for a potential full-grade -ya- passive:

madyā- ‘be cheered’ < $*med\text{-}ye/o\text{-}$ (2. $*med\text{-}$; see LIV² 423–4, EWAia II 299–300).

This could conceivably represent a replacement of $*adyā\text{-}$ (< $*md\text{-}ye/o\text{-}$), with the initial nasal restored from full-grade forms.

These putative replacements of original zero-grade forms seem to depend on the notion that full-grade vocalism was atypical outside a small phonotactically defined class, in spite of LIV²'s willingness to reconstruct full-grade $*\text{-}ye/o\text{-}$ verbs elsewhere. Such an approach appears to be stipulative rather than empirical, and we cannot simply ignore the evidence of such full-grade examples as we do find in Vedic. However, this supposed replacement of zero-grade forms does seem like a

¹⁹ LIV² l.c. reconstructs $*(s)g^w esH_2\text{-}ye/o\text{-}$, but I reconstruct a true full-grade vowel, for the same reasons as in n. 18.

²⁰ The missing laryngeal reflex may be due to Pinault's rule (see §3.8.1).

²¹ It may be that the root *dad-* was resegmented from a prevocalic $*de\text{-}dH_3\text{-}V$ to which the -ya- suffix was then added. Alternatively, the lack of a laryngeal reflex may be due to Pinault's rule, in which case we could actually suppose a reduplicated formation $*de\text{-}dH_3\text{-}ye/o\text{-}$.

plausible and well motivated potential process: if these had been zero-grade *-ya-* verbs in the first instance, we can easily see why they might have been replaced; such zero-grade root shapes would have run a distinct risk of becoming disassociated from their full-grade counterparts when syllabic nasals yielded **a*, especially given that the resultant allomorphy would have involved an alternation in root anlaut as well as alternations in root vocalism. There is no independent evidence that this was what happened, but the doubts raised by this realistic possibility must urge caution. These examples do not constitute particularly firm grounds for reconstructing such a full-grade category for Indo-European, unless other evidence can be adduced in its favour.

There are a number of other class IV formations that appear to be derived from full-grade **-ye/o-* verbs, but on closer inspection almost all of these are likely to be secondary, or else capable of other explanations.²²

We appear to find a full-grade formation with a potentially heavy sequence involving a sequence of obstruents:

médya- ‘be/become fat’ < **masd-ye/o-*, cf. YAv. *azdiia*, Gk *μαζός*, NHG *mast*, etc. (**masd-*; see LIV² 422–3, EWAia II 376–7).

This example presents some problems of reconstruction, not least because the comparison with Greek *μαζός* seems to suggest an original **a* root vocalism in Indo-European, yet **a* is not part of most standard reconstructions of Indo-European. If **masd-ye/o-* is the correct reconstruction, then this could show that Sievers’ Law did not apply to the *-ya-* verbs, or that Schindler was right to treat obstruent clusters as light sequences.

However, *médya-* cannot bear the weight of such conclusions, since there are grounds for doubting the antiquity of the formation. We seem to find a zero-grade root structure in YAv. *azdiia* apparently from **mzd-ye/o-*. We might suppose that an Indo-Iranian verb **azd-ye/o-* (< **mzd-ye/o-*) was remodelled after full-grade forms in Indic to give **masd-ye/o-* > Ved. *médya-*. However, we cannot even be sure that **mzd-ye/o-* should be attributed to Indo-Iranian, given the disagreement in root vocalism between Indic and Iranian. The *-ya-* verbs in each branch could be separate innovations, perhaps starting from an original formation with root ablaut alternations.

We cannot realistically use the evidence of *śrāyant-* ‘become ready, cook’ to reconstruct a full-grade formation which is of any antiquity. There is a seemingly cognate past participle *śrtá-* with the same sense, in which case *śrāyant-* has an extended root **sr-ā-* which need not be very old (see EWAia II 668–9).

We have Iranian cognates for *rāyasi* ‘bark’ which allow the reconstruction of a **-ya-* formation for Indo-Iranian; cf. YAv. *raiiant-*. Comparisons have been drawn with Lat. *lātrāre* ‘bark’, Lith. *lōti* ‘bark’, etc., and we might be tempted to reconstruct **leH₂-ye/o-* or, if we compare ON *rāmr* and Russ. *rājat*, **HreH₁-ye/o-* (see LIV² 400–1, EWAia II 443). The zero grade of **leH₂-* might be found in Gk

²² Discussion of *gāyati* ‘sing’ probably does not belong here, since it seems to be from **g^weHy-e/o-*; see LIV² (183 s.v. 2. **g^weH(y)-*), and EWAia (I 483–4). The **y* is part of the root; cf. *gīta-* (with laryngeal metathesis: **g^wiH- < *g^wHy-C-*). Note, however, that the passive form *gīyāmāna-* may be worth considering if it reflects **g^wiH-ye/o-*. But on the difficulties of using the evidence of roots with laryngeal metathesis, see §6.3.2.3.

λαίειν (Hsch.) and λάσχω. The reconstruction of **leH₂-ye/o-* or **HreH₁-ye/o-* is made difficult by the transparently onomatopoeic nature of the Indo-Iranian root **rā-* ‘bark’, regardless of its status in Indo-European. Perhaps in consequence, the root is invariant in Indo-Iranian, and this makes the utility of the example suspect.

The root **pyā-* in *pyāyase* ‘swell’ is only found in Old Indo-Aryan; it seems likely that the inherited form of the root was **pey(H)-* (see LIV² 464–5, EWAia II 172 and 83–4). It is conceivable that schwebeablaut was involved, but this root may simply be a purely Indic innovation, and there is no particular reason to suppose that a laryngeal was involved in its formation.

Similarly, it looks as if *trāyase* ‘protect, rescue’ could be a full-grade formation (see EWAia I 679–80). Insofar as there is an etymology, we tend to connect Ved. *tirás* ‘through, across’, YAv. *tarō* < **tṛH₂-os*, cf. Lat. *trāns*, but the full-grade form of this root was **terH₂-*, cf. Hitt. *tarḫ-*, *tarḫu-*. We would have to suppose that schwebeablaut was involved and that Indo-Iranian was unique in preserving an archaism rather than innovating in this respect. Certainly, this would be an uncertain basis for supporting this morphological category.

On the face of it we might suppose that *dhamyáte* ‘be blown’ goes back to **d^hemH-ye/o-*, since a zero-grade form **d^hmH-ye/o-* would have yielded **dāyate* (see LIV² 153, EWAia I 775). However, the older full-grade root is represented by *dhmā-* < **d^hmeH-*. The thematic present *dhamati* is probably from a zero-grade form **d^hmH-e/o-*. The root shape **d^hemH-* implied by *dhamyáte* is unlikely to be old, unless we think that schwebeablaut was generally available at an early stage. It seems most likely that the passive is based directly on the thematic present stem *dhm-*, at a stage after the loss of the laryngeal. The value of *dhamyáte* in determining the properties of early **-ye/o-* verbs would in this case be minimal.

A full-grade formation seems to lie behind the isolated present participle *kāyamāna-* ‘loving, liking’, cf. OAv. *kaiiā-*. The root can be convincingly compared with that of the **-ro-* formation in Lat. *cārus* ‘dear, affectionate’, Goth. *hors* ‘adulterer’, Latv. *kārs* ‘lustful’, etc. Such comparisons seem to favour a reconstruction **keH₂-ye/o-* (see LIV² 343, EWAia I 334). However, matters are somewhat complicated by the relationship with the semantically closely associated *seṭ* root *kan-*; cf. Ved. *can-* ‘delight in a thing’ in aor. *caniṣṭām* and *kan-* in perf. *cākana* (YAv. *cakana*). LIV² loc. cit. supposes that *kan-* is a secondary development, and this may well be so; Cheung (2007:233) suggests that the Indo-Iranian root **kanH-* may actually result from nasal infixation of IE **keH₂-*. It is also possible that the present participle *kāyamāna-* is actually a zero-grade **-ya-* formation from this Indo-Iranian root, regardless of its origin, i.e. **k-n-H-ya-*, or merely **knH-ya-*.

The root *śrā-* ‘become cooked’ in *śrāyant-* could be an elaboration of the root *śar-/śr-*, found in *śṛtā-* ‘cooked’ (see EWAia II 668–9). The stem-final *-ā-* does not necessarily involve a full-grade vowel.

We cannot see in *jñāyáte* ‘be known, distinguished’ the direct reflex of a zero-grade form, since **ǵnH₃-ye/o-* should have yielded **jāyáte*. We might be able to reconstruct **ǵneH₃-ye/o-* (see LIV² 168–70, EWAia I 599–601), and this may be an example of a full-grade **-ye/o-* formation. But it would also be a relatively simple matter for an inherited zero-grade **-ye/o-* verb to have been influenced by the full-grade root shape *jñā-*; the process could be exactly parallel to the way in which the expected zero-grade *-ta-* participle from this root **jā-ta-* (< **ǵnH₃-to-*) was replaced by *jñā-ta-*.

Indeed, leaving aside the examples which can be explained away on the basis of phonotactics or highly plausible analogy in a straightforward fashion, there are only four relatively secure examples of full-grade *-ya-* verbs in Vedic, out of the consonant-final examples we are studying. They are all class IV verbs:

ásyati ‘throw, shoot’ < **H₁es-ye/o-*? (2. **H₁es-*; see LIV² 242–3, EWAia I 144–5);

háryati ‘delight in’ < **ġ^her-ye/o-*? (**ġ^her-*; see LIV² 176–7, EWAia II 804);

tányati ‘resound, roar’ < **(s)tenH₂-ye/o-*? (**(s)tenH₂-*; see LIV² 597, EWAia I 619 and II 752–3);

váyati ‘leave off, be extinguished’ < **H₁weH₂-ye/o-*? (**H₂weH₁-*; see LIV² 254, EWAia II 538).

It seems difficult to construct a phonotactic explanation of the full-grade vowels in any of these cases. There is no obvious reason why a hypothetical zero-grade **hryati* should have been phonotactically unacceptable; cf. *tíṣyat-* ‘be thirsty’ < **tr̥s-ye/o-* (see §6.3.2.2, p. 233). Similarly, a hypothetical zero-grade formation **H₁s-ye/o-* would not have presented any obvious articulatory difficulties: it would have been perfectly possible to ‘vocalize’ the laryngeal (or develop an anaptyctic vowel, whichever way we choose to view it); cf. *sidhyati* ‘succeed’ < **sHd^h-ye/o-* (see §6.3.2.3, p. 238). So there are clearly ways to cope with clusters containing laryngeals which do not involve inserting a full-grade vowel, yet we find *ásyati* < **H₁es-ye/o-*. Similarly a theoretical **(s)tñH₂-ye/o-* presents no obvious problems—cf. *śrāmyati* ‘be tired’ < **kr̥m̥H₂-ye/o-* (see §6.3.2.3, p. 238)—nor should a hypothetical form **H₂uH₁-ye/o-*.

We find *tányati* ‘resound, roar’ only once in the Rigveda, but its more frequently attested deverbal derivatives such as the verbal abstract *tanyatú-* and *tanyatā* show that it must have been a living formation at one stage (see Narten 1993:322). The reconstruction of a full-grade **-ye/o-* present relies on accepting that this was a *seṭ* root. If the root was *anīt*, then we could simply suppose a zero-grade formation **tñ-ye/o-* which would have yielded *tányati*, be it by analogy or sound change (cf. *mānyate* ‘think’ < **mñ-ye/o-* and see §6.3.2.2). If the root was *seṭ*, then *tányati* must have a full-grade root, since **tñH-ye/o-* would not yield the attested outcome (cf. *śrāmyati* < **kr̥m̥H₂-ye/o-*). A full-grade **tenH-ye/o-*, seemingly with loss of the laryngeal after a consonant and before *y* (by Pinault’s rule), might find precise cognates in Hsch. τέννει· στένει, βρούχεται, and, insofar as initial **s-* can be overlooked, OCS *stenjō*, *stenati*.

The evidence that *tan-* was a *seṭ* root in Vedic rests on two bases. There is an obviously parallel root *stan-* ‘thunder’ < **stenH₂-* in *stanayati* and Lat. *tonāre* < **(s)tonH₂-eye-*. The root-final laryngeal is suggested by the failure of *stanayati* to undergo Brugmann’s Law lengthening of **o* in an open syllable, and the quality of the laryngeal is suggested by the *ā*-vocalism of Latin. Narten (1993) has shown on semantic grounds that *stan-* and *tan-* are simply root variants from a Vedic point of view, and so it is tempting to derive *tan-* from **(s)tenH₂-* also. The second argument for the *seṭ* character of the root comes from the evidence of the three reduplicated aorists: indicative *atatanat* (AVP 2.58.4, 2.70.1), beside injunctive *tatanas* (RV 1.38.14) and *tatánat* (RV 8.21.18) used with a hortative function (see Hoffmann 1976:2, 562–9). We would tend to expect a zero-grade root in a

reduplicated aorist formation of this type, cf. *apaptat* ‘fly’, *avocat* ‘speak’, *aneśan* ‘vanish’,²³ and so Hoffmann posits a laryngeal-final root **e-te-tnH₂-et* > *atatanat*.

The first of these arguments must be tempered by the observation that within Vedic there was also an *aniṣ* root in the root aorist injunctive form *stan* ‘groan, make a noise’ (RV X.92.8); given the existence of competing onomatopoeic root variants, it seems less than straightforward to automatically transfer our findings about the phonological shape of one root to another. Even within the history of Vedic it would be easy to imagine interference between these formations. So we probably cannot reliably assume that *tan-* is a *seṭ* root on the basis that *stan-* ‘thunder’ is *seṭ*.

The evidence of the reduplicated formations is also less than straightforward. Bendahman (1993:195) points out that the root accent of *tatánat* rather speaks in favour of a full-grade rather than zero-grade formation, in which case the laryngeal would no longer be guaranteed, i.e. **te-tén(H)-et*. Bendahman notes that this could be analysed instead as perfect subjunctive, though this would require us to believe that an *e*-grade root was to be found in such formations—a possibility for which there is some independent evidence (see Kümmel 2000:35–6).

In any event, the evidence is sufficiently ambiguous that this example would be a slim basis upon which to base a morphologically motivated full-grade **-ye/o-* formation for Indo-European.

In the other cases the comparative evidence fails to show any agreement over the root vocalism involved. Kimball (1987:163ff.), followed by *LIV*² (243, esp. n. 4), connects *ásyati* with Hitt. *šiye/a-* ‘to shoot’, though the Hittite verb must reflect a zero-grade formation **H₁s-ye/o-*.²⁴ This makes it difficult to project the full-grade formation back into Indo-European on the basis of this example.

We are faced with similar difficulties in the case of *háryati*.²⁵ A zero-grade formation **ǵ^hr-ye/o-* is suggested by Greek *χαίρω* and Latin *horior*. On the other hand, the Umbrian future form *heriest* may support the Sanskrit full-grade evidence, if the future stem is built from a present stem in **-ye/o-* with an *-s-* suffix added. However, this Umbrian cognate may be difficult to use, if Schrijver (2003:81–5) is correct in his argument that there is a future suffix *-ies-* in Umbrian beside second conjugation verbs. None of the other attested Sabellian forms is sufficient to guarantee a **-ye/o-* formation. Therefore, Indo-Iranian may stand alone in having a full-grade **-ye/o-* verb from this root.

²³ We should note that the Vedic reduplicated aorist is a rather heterogeneous formation with variation in the quality and quantity of the reduplication vowel, root vocalism, and semantics. However, forms with *a*-reduplication and non-causative semantics tend to have zero-grade root vocalism. For illuminating discussions see Jamison (1983:214–19) and Bendahman (1993).

²⁴ This root is conflated in Hittite with the verb *šai-/ši-* ‘to press, seal’ < **seH₁-* ‘to sow (by pressing seeds into the ground)’ according to Kloekhorst (2008:694–5).

²⁵ Lubotsky (1989:107) thinks that this root is *seṭ*, on the basis of *harayanta* which could go back to **ǵ^horH-eye/o-*. At any rate, there is no trace of a laryngeal in the various **-ye/o-* derivatives, which would have to be explained as the outcome of Pinault’s rule under this analysis, or else an analogical development. The *seṭ* reconstruction would go a certain amount of the way to explain the prevalence of the root shape *χαρ-* before vowels in Greek. But it seems equally possible that analogy is involved here. I leave the question open, since the main problem is the question of the root vocalism in the **-ye/o-* present.

It is reasonably clear that *váyati* ‘leave off, be extinguished’ has an Iranian counterpart in *frauuaiia-* ‘go out, be extinguished’, and these are cognate with Latin *vānus* ‘hollow, devoid’ etc. It has been convincingly argued that these are in turn cognate with ἐάω ‘allow’ and ἐόνις ‘bereft of, without’. This allows us to reconstruct a root **H₁weH₂-* (see Nussbaum 1998:73–84, *LIV*² 254; cf. *EWAia* II 538). In such a case *váyati* can go back to a full-grade *-ya-* formation. But Greek ἐάω does not provide a guarantee that this is an Indo-European formation. The Greek phonology in roots of this shape is at best ambiguous (see §6.8.1.5). Nussbaum (1998:45) views the present stem of ἐάω as being analogical on other full-grade primary stem forms such as the aorist.

It might be argued that full-grade forms such as *ásyati* and *háryati* are unlikely to represent innovations. If a full-grade formation was inherited from Indo-European, it would be completely understandable that Hittite (in the case of *šiye/a-*) and Greek and Latin (in the case of χαίρω and *horior*) replaced an atypical full-grade formation with the more regular zero-grade type. On the other hand, the converse scenario in which Vedic *ásyati* and *háryati* represent innovations seems much more difficult to maintain, if the inherited Indo-European verbs were of the very well-established zero-grade type.²⁶

However, this line of reasoning does not take into account another possibility. It would be plausible for Indo-European to have had an athematic ablauting formation, which the various daughter languages subsequently replaced with a **-ye/o-* present, generalizing different ablaut grades in the process. The only slight worry with this hypothesis is that while the replacement of athematic verbs with **-ye/o-* verbs is a perfectly normal phenomenon in the history of Greek, it is perhaps less expected in the other languages.²⁷

We will return to the question of the status of the full-grade **-ye/o-* formation in the context of the Greek evidence shortly. But it is clear from these data that there are very few full-grade **-ye/o-* verbs represented in Vedic whose antiquity can be guaranteed, and, contrary to our initial expectations, the attested full-grade examples hardly ever yielded heavy consonant-final sequences before the *-ya-* suffix at any stage in their history, owing to the nature of the root shapes involved. The only exception to this generalization is *médya-*, which cannot even be shown to go back as far as Indo-Iranian. These verbs do not give us any particular reason to suppose that Sievers’ Law failed to operate on the **-ye/o-* verbal suffix.

6.3.2.2. Zero-grade Formations

The great majority of *-ya-* verbs in the Rigveda have a zero-grade root. Usually, but not always, this results in a stem which is light for the purposes of Sievers’ Law and the suffix is *-ya-* rather than *-iya-*, so these examples do not challenge the notion that Sievers’ Law would have applied in this category.

In one class IV verb we find a root with a final nasal, which apparently vocalizes before the *-ya-* suffix, and we find *y*, as expected, in an originally intervocalic environment:

mányate ‘think’ < **mṇ-ye/o-* (**men-*; see *LIV*² 435–6, *EWAia* II 305–6).

²⁶ This type of argumentation is implicit in *LIV*² (176 n. 3).

²⁷ I am grateful to my external examiner Prof. Donald Ringe for this suggestion.

However, this reconstruction assumes that **mṇ-ye/o-* would be expected to regularly develop into *mányate*. If Tucker (1988) was right to see *vrṣāyate* as the regular outcome of **vrṣṇ-ya-te*, with **ā* as the regular outcome of **ṇ* subsequently lengthened by a rhythmical rule, then *mányate* and similar examples would have to exhibit a presumably analogical full-grade vowel in the root. In any event, this sequence would have been light for Sievers' Law throughout its history.

In a couple of instances we also find potential outcomes of a vocalic nasal immediately before the -ya- passive suffix:

yamya- 'be offered' < **ym-ye/o-* (**yem-*; see LIV² 312, EWAia II 399–400);

hanya- 'be struck down, killed' < **g^{wh}ṇ-ye/o-* (**g^{wh}en-*; see LIV² 218–19, EWAia II 800–1).

Once again, interpretation of these examples depends on our view of what the proper outcome of syllabic nasals before **y* should be. If we follow the usual view that **ṇ* > **am* and **ṇ* > **an* before **y*, then these can be zero-grade formations. However, if we think that **ym-ye/o-* should have yielded **yaya-* and **g^{wh}ṇ-ye/o-* should have yielded **haya-*, then either *yamya-* and *hanya-* could represent full-grade formations **yem-ye/o-* and **g^{wh}en-ye/o-*, or they could have restored the stem-final nasal from the full-grade roots *yam-* and *han-* rather than being original full grades themselves.

We find a syllabic liquid root-finally in several other -ya- passive examples:

kriya- 'make, prepare, accomplish' < **k^wr-ye/o-* (**k^wer-*; see LIV² 391–2, EWAia I 307–9);

dhriya- 'stay' < **d^hr-ye/o-* (**d^her-*; see LIV² 145–6, EWAia I 778–9);

bhriya- 'be brought' < **b^hr-ye/o-* (**b^her-*; see LIV² 76–7, EWAia II 246–9);

mriya- 'die' < **mr-ye/o-* (**mer-*; see LIV² 493–40, EWAia II 318–19).²⁸

Otherwise we find zero-grade roots, usually of a structure such that the **-ye/o-* suffix is preceded by a sequence of a syllabic resonant plus a single obstruent, i.e. a light sequence. Here are the class IV examples:

úcyati 'take pleasure' < **H₁uk-ye/o-* (**H₁ewk-*; see LIV² 244–5, EWAia I 277);

fjyate 'stretch out' < **H₃rġ-ye/o-* (**H₃reġ-*; see LIV² 304–5, EWAia II 425);

rdhya- 'prosper' < **H₂ld^h-ye/o-* (**H₂eld^h-*; see LIV² 262–3, EWAia I 118);

gṛdhyat- 'be eager, greedy' < **g^(w)ld^h-ye/o-* (**g^(w)eld^h-*; see LIV² 185, EWAia I 474);

tṛṣyat- 'be thirsty' < **tṛs-ye/o-* (**ters-*; see LIV² 637–8, EWAia I 635–6);

dṛṣhya- 'be/become firm' < **dṛḡh-ye/o-* (**delġ^h-*; see LIV² 113, EWAia I 706–7);²⁹

púsyati 'prosper, make prosper' < **H₃pus-ye/o-* (**H₃pews-*; see LIV² 303–4, EWAia II 171–2);³⁰

²⁸ On the status of **iya* in these examples, see n. 14. The discrepancy between the non-passive meaning and the accentuation appropriate to a passive in *dhriyáte* 'holds (to)' and *mriyáte* 'dies' may be due to an accent shift (see Kulikov 1997).

²⁹ LIV²'s reconstruction, followed here, is just one of several possible etymologies noted in EWAia.

³⁰ It should be noted that the etymology of this form is disputed.

budhya- ‘awaken’ < **bud^h-ye/o-* (**bewd^h-*; see LIV² 82–3, EWAia II 233–5);
múcyate ‘become free’ < **muk-ye/o-* (**mewk-*; see LIV² 443–4, EWAia II 382);³¹
mṛṣyate ‘forget’ < **mṛs-ye/o-* (**mers-*; see LIV² 440–1, EWAia II 332);
yúdhya- ‘fight’ < **Hyud^h-ye/o-* (**Hyewd^h-*; see LIV² 225–6, EWAia II 418–19);
ricyate ‘empty, surpass’ < **lik^w-ye/o-* (**leyk^w-*; see LIV² 406–7, EWAia II 457–8);
rudhyate ‘grow (?)’ < **H₁lud^h-ye/o-* (**H₁lewd^h-*; see LIV² 248–9, EWAia II 467–9, Kulikov 2012:198–207);
vidhya- ‘pierce’ < **H₂wid^h-ye/o-* (**H₂wyed^h-*; see LIV² 294–5, EWAia II 591–2);
śúsya- ‘dry up’ < **H₂sus-ye/o-* (**H₂sews-*; see LIV² 285, EWAia II 658);
hrṣyati ‘be/become excited’ < **g^hrs-ye/o-* (**g^hers-*; see LIV² 178, EWAia II 807–8).

There were also a number of laryngeal-final examples, though sometimes the laryngeal fails to show a reflex:

íṣyati ‘send’ < **H₁isH₂-ye/o-* (**H₁eyshH₂-*; see LIV² 234, EWAia I 271–2);³²
jāyate ‘be born’ < **gⁿH₁-ye/o-* (**genH₁-*; see LIV² 163–5, EWAia I 567–8);
jīyate ‘be deprived of property’ < **gⁱH-ye/o-*? (**gyeH-*; see LIV² 167, EWAia I 603);³³
dīyati ‘fly’ < **diH₁-ye/o-* (**deyH₁-*; see LIV² 107, EWAia I 700–1);³⁴
pīyati ‘blame’ < **piH₁-ye/o-* (**peyH₁-*; see LIV² 559–60, EWAia II 85);
mīyate ‘perish’ < **miH-ye/o-* (**meyH-*; see LIV² 427, EWAia II 316–17);
rīyate ‘swirl’ < **H₃riH-ye/o-* (**H₃reyH-*; see LIV² 305–6, EWAia II 437–8).

Some other class IV examples show a light stem, but do not have a secure Indo-European etymology:

kṣúdhyat- ‘be hungry’ < ? (see EWAia I 440);
-drpyat- ‘be bewildered’ < ? (see EWAia I 703);
nṛtyat- ‘dance’ < ? (see EWAia II 21–2);
múhya- ‘be confused’ < Ilr. **muḡ^h-ya-/***muḡ^h-ya-* (see EWAia II 384–5);
raṇyati ‘rejoice’ < ? (see EWAia II 427–8);
rīsyati ‘be hurt’ < **ris-ye/o-* (**reys-*; see LIV² 505, though relations outside Indo-Iranian are far from certain, and EWAia II 462–3).

³¹ Seebold (1972:288) classed this form as passive (albeit with a question mark), but following Joachim (1978:127) *múcyate* ‘becomes free, is released’ is not passive but an intensive middle; hence it may be understood as a collateral (polymorphic) present beside its *n*-infixed counterpart *muñcāmi*. See also Kulikov (1998).

³² As with several of the other examples already mentioned, the lack of a laryngeal reflex could be due to Pinault’s rule, or a reanalysis of the root.

³³ We also find a passive form from the same root, *jīyáte*. The root is only found in Ilr.; cf. YAv. *-zinte*, *zināt*.

³⁴ LIV² compares Gk *δῖενται* ‘hurry’ but Frisk (1973:389–90) doubts the semantic connection, since the Vedic verb means ‘fly’.

Similarly, a great many -ya- passives with zero-grade roots have a sequence of a syllabic resonant plus a single obstruent before the suffix:

- acya*- ‘bend’ < **H₂nk-ye/o-* (**H₂enk-*; see LIV² 268, EWAia I 52–3);³⁵
ajya- ‘annoint’ < **H_{2/3}ng^w-ye/o-* (**H_{2/3}eng^w-*; see LIV² 267, EWAia I 54);³⁶
idhya- ‘kindle’ < **H₂id^h-ye/o-* (**H₂eyd^h-*; see LIV² 259, EWAia I 267);
ucya- ‘be pronounced, sound’ < **uk^w-ye/o-* (**wek^w-*; see LIV² 673–4, EWAia II 489–91);
uhya- ‘be carried’ < **uġ^h-ye/o-* (**weġ^h-*; see LIV² 661–2, EWAia II 535–7);
guhya- ‘be hidden’ < **g^(w)uġ^h-ye/o-* (?**g^(w)ewġ^h-*; see LIV² 199, EWAia I 502–3);³⁷
-chidyamāna ‘break off’ < **sk^hid-ye/o-* (**sk^heyd-*; see LIV² 547–8, EWAia I 561);
tujya- ‘be put to flight’ < **H₂tūġ-ye/o-* (**H₂tewġ-*; see LIV² 286, EWAia I 670);
duhya- ‘be milked’ < **d^huġ^h-ye/o-* (**d^hewġ^h-*; see LIV² 148–9, EWAia I 747–8);
dr̥śya- ‘be visible’ < **d̥rk-ye/o-* (**derk-*; see LIV² 122, EWAia I 704–6);
nīdya- ‘be blamed’ < **H₃nīd-ye/o-* (**H₃neyd-*; see LIV² 303, EWAia II 54–5);
badhya- ‘be bound’ < **b^hnd^h-ye/o-* (**b^hend^h-*; see LIV² 75, EWAia II 208);
mr̥jya- ‘be cleansed’ < **H₂mr̥ġ-ye/o-* (**H₂merġ-* and possibly **H₂melġ-*; see LIV² 280–1, EWAia II 324–6);³⁸
yujya- ‘be yoked’ < **yug-ye/o-* (**yewġ-*; see LIV² 316, EWAia II 417–18);
vacya- ‘move (waveringly), jump’ < **wṇk-ye/o-* (**wenk-*; see LIV² 683, EWAia II 492–3);³⁹
vidya- ‘be found, exist’ < **wyd-ye/o-* (**weyd-*; see LIV² 665–7, EWAia II 579–81);
vr̥jya- ‘be prepared’ < **H₂wr̥ġ-ye/o-* (**H₂werġ-*; see LIV² 290–1, EWAia II 516–17);
śasya- ‘be recited’ < **k̥ms-ye/o-* (**k̥ems-*; see LIV² 326, EWAia II 599–600);⁴⁰
sicya- ‘be poured’ < **sik^w-ye/o-* (**seyk^w-*; see LIV² 523, EWAia II 744–5);
sr̥jya- ‘be set free’ < **sl̥ġ-ye/o-* (**selġ-*; see LIV² 528–9, EWAia II 709).⁴¹

There were also a number of laryngeal-final examples, though sometimes the laryngeal fails to show a reflex, in some cases probably because of Pinault’s rule:

³⁵ On semantic difficulties with the root and diathesis, see Kulikov (2012:452–7).

³⁶ LIV² reconstructs a root **H₂eng^w*. due to the /a/ in Gk -αμφος, while EWAia posits **H₃eng^w*, presumably on the basis of the reflexes of consistent *o*-vocalism in Italic, e.g. Lat. *unguo*, Umbr. *umtu*. Of course, this aspect of the reconstruction has no direct effect on arguments about Sievers’ Law in this category. Kulikov (2012:41–7) finds no positive evidence for a connection with *aj*- ‘drive’.

³⁷ This root is only found in Indo-Iranian.

³⁸ LIV² derives the root MARJ only from **H₂merġ-*, while Joachim (1978:131) argues that MARJ represents a falling together of both **H₂merġ-* and **H₂melġ-*.

³⁹ This occurs as a verbal root only in Indo-Iranian. This form is not passive in meaning, in spite of the accent in *vacyāte* (see LIV² 683 n. 2, Kulikov 2012:218–24).

⁴⁰ LIV² reconstructs a root **k̥eNs-*, without committing to the particular nasal involved.

⁴¹ To this list should be added *rcya*- ‘recite, praise’, see EWAia (I 114–15) and Kulikov (2012:58–62).

udya- ‘be pronounced’ < **H₂udH-ye/o-* (**H₂wedH-*; see LIV² 286, EWAia II 496);⁴²

upya- ‘be scattered’ < *(*H₂*)*up(H₁)-ye/o-* (*(*H₂*)*wep(H₁)-*; see LIV² 684, EWAia II 503–4);⁴³

nīyáte ‘be led’ < **niH-ye/o-* (**neyH-*; see LIV² 450–1, EWAia II 17–19);

mathya- ‘be whirled around’ < **m̃ntH₂-ye/o-* (**mentH₂-*; see LIV² 438–9, EWAia II 311–12, Pinault 1982:266);

sūyáte ‘be consecrated’ < **suH-ye/o-* (**sewH-*; see LIV² 538–9, EWAia II 715–16);

pūyate ‘be purified’ < **puH-ye/o-* (**pewH-*; see LIV² 480–1, EWAia II 105–7);

hūyáte ‘be called’ < **ḡ^huH-ye/o-* (**ḡ^hewH-*; see LIV² 180–1, EWAia II 809–11).⁴⁴

We also find a number of formations from intensive stems, including some with laryngeal-final roots:

coṣkūyase ‘poke’ < **skuH₂-ye/o-* (**skewH₂-*; see LIV² 561, EWAia II 751);

marmrjya- ‘purify’ < from the root *marj-* (see *mrjya-* above);⁴⁵

reriha- ‘caress repeatedly’ < **ley-liḡ^h-ye/o-* (**leyḡ^h-*; see LIV² 404, EWAia II 463);

vevijya- ‘shrink away in fear’ < **wey-wig-ye/o-* (*(*H₃*)*weyg-*; see LIV² 667–8, EWAia II 577–8);⁴⁶

vevīyate ‘flutter’ < **wiH₁-ye/o-* (**weyH₁-*; see LIV² 668–9, EWAia II 509–10).⁴⁷

Some passive forms do not have clear etymology, but nonetheless show a light sequence before *-ya-*:

panya- ‘be admired’ < ? (see EWAia II 80–1);

prcyā- ‘be filled, increased’ < ? (perhaps from **perk-* or **pel-k-*; see LIV² 476 and n. 1, EWAia II 96);

ribhya- ‘be rasped at, sung at’ < **Rib^h-ye/o-* (**Reyb^h-*; see LIV² 502, EWAia II 461).⁴⁸

⁴² If we were sure of the *seṭ* character of the root, then the lack of a laryngeal reflex could be due to Pinault’s rule, or a reanalysis of the root. However, Pinault (1982:266) notes that there is no evidence for a root-final laryngeal outside Sanskrit. See Kulikov (2012:462–3) on *udyate* ‘be/get wet’.

⁴³ LIV² suggests that this root is only found in Indo-Iranian, cf. OAv. *viuūāpat̃*, and reconstructs **wep-*. Melchert (1988:233) compares the Hittite root *ḫuwapp-* ‘throw, hurl; be hostile to’ with Skt *vāpati* ‘throw, strew’ and reconstructs a root **H₂wep-*. Kloekhorst (2008:369–71) reconstructs **H₂wepH₁-*. If there is a root-final laryngeal, then this is not manifested in the Indo-Iranian evidence, and we would have to assume that the root became *aniṭ* through analogy, or else that Pinault’s rule applied, deleting the laryngeal between a consonant and **y*.

⁴⁴ To this list should be added *tāyáte* ‘be performed’, seemingly from the zero-grade of a *seṭ* root *tanⁱ-* (but on its predominantly *aniṭ* character, see Kulikov 2012:96–101 and EWAia I 618–19), and *īya-* from the root *īyā-* ‘drive’ or *īyā-* ‘implore’ (see Kulikov 2012:494–6 and EWAia II 407–9).

⁴⁵ We cannot suppose that *marmrjya-* is particularly ancient, since a formation with total reduplication **H₂mer-H₂mṛḡ-ye/o-* should contain a laryngeal reflex.

⁴⁶ For problems in connecting this with the root **H₃weyg-*, see LIV² (308 n. 1).

⁴⁷ This appears to be a reduplicated formation.

⁴⁸ This root is probably only Vedic, but possibly compare Oss. *rewun* and Latv. *ribēt*.

None of the forms discussed in this section would have contained a heavy sequence before the *-ye/o- suffix at any point in their history. It is not surprising on any analysis, therefore, that they exhibit non-syllabic *y.

6.3.2.3. Verbs with Heavy Stems

Some verbs originally contained word-initial consonant clusters involving laryngeals before *-ye/o-, and it would be useful to know whether these constituted heavy or light sequences. However, the clusters in question underwent significant changes which render the evidence difficult to use.

We find no vowel reflex from the laryngeal in *dyāti* ‘bind’ < *dH₁-ye/o- (*deH₁-; see LIV² 102, EWAia I 1716–17). Pace Pinault (1982), it seems unlikely that this outcome can be accounted for by the converse of Sievers’ Law devocalizing a putative **diyāti* (whether this arose from *dH-ye/o- or *dH-*iye*/o-), since there does not seem to be a converse of Sievers’ Law in Vedic. Nor can it easily be accounted for by Pinault’s rule, since that is supposed to be limited to non-initial syllables. We may simply have to fall back on the observation that inter-consonantal laryngeals do not always yield vowel reflexes in Indic. If the lack of reflex can only be accounted for if the laryngeal was inter-consonantal, this would imply that we had *-ye/o- rather than *-iye/o- at an early stage. In principle this might prove an interesting datum in the general question about the moraic properties of obstruents in Indo-European, in that *y follows a cluster *TH-. However, given the general failure to find regular vocalization of semivowels in word-initial clusters, it seems difficult to use this verb to draw substantive conclusions either about this very general question, or more specifically about the sensitivity of the -ya- suffix to Sievers’ Law in word-internal environments.⁴⁹

We seem to have a different laryngeal reflex in *dhiyáte* ‘be put’ < *d^hH₁-ye/o- (*d^heH₁-; see LIV² 136–8, EWAia I 783–7). The same outcome can be found in *hiyáte* ‘fall behind, be abandoned’ < *ǵ^hH₁-ye/o- (*ǵ^heH₁-; see LIV² 173, EWAia II 813–14).⁵⁰ It is unclear whether these forms should be analysed as involving a disyllabic suffix -iya- with the morphologically motivated lengthening of Sanskrit *ī at a morpheme boundary before *y (for which, see

⁴⁹ A parallel example might be found in *syāti* ‘bind’ < *sHye/o-? (see LIV² 518, 544; EWAia II 720–1). However, it is doubtful that this was a *-ye/o- verb. It is difficult to reconstruct the Indo-European root, because on the one hand *sināti* (cf. Toch.A *sināstār*) appears to have an *i* in the root and a final laryngeal (i.e. *si-ne-H₂-), while consistently disyllabic *syāti* (rather than **siyati*) rather speaks against such a configuration; if the form had been *siH-ye/o-, we would have expected this to yield **siyati*; cf. *dīyati* and *pīyati* (§6.3.2.2). It would be ad hoc to suppose a converse of Sievers’ Law operating word-initially here, since we have seen that there is no converse of Sievers’ Law in Vedic. EWAia reconstructs an athematic *i*-present *sH₂-i- in order to explain the appearance of **i* in the root: the expected pre-consonantal form *sH₂-i-C could have undergone laryngeal metathesis yielding *siH₂-C from which a root containing **i* could have been abstracted for the creation of *si-ne-H₂- > *sināti*. Kloekhorst (2008:391–3) follows the same line, and reconstructs a root *seH₂- with an ablauting *-oy-/i- suffix for Hitt. *iš-ḫi-an-zi*. LIV² (518, 544) on the other hand posits different roots for *sināti* and *syāti*: *sH₂ey- (in *sināti*) but *seH₁(y)- (in *syāti*). In any event, the mechanism for transposing **i* within the root of *sināti* ought to be the same, but the **i* is part of the root and not a suffix. Whichever analysis we accept, it seems reasonable to suppose that we are probably not dealing with a *-ye/o-present here.

⁵⁰ On the irrelevance of *mīyate* ‘diminish’ for this issue, see Kulikov (2012:173–8, 415–20).

Jamison 1988:215–16) or the vocalic reflex of a laryngeal, with the same type of morphologically conditioned lengthening, and the monosyllabic suffix *-ya-*. The result is that the evidence of these forms is intrinsically ambiguous.

It is difficult to know the expected ‘weight’ of the word initial sequence in *sidh-yati* < **sHd^h-ye/o-* (**seHd^h-*; see LIV² 517; EWAia II 722–3), see §2.7.5.1 and §6.3.3.

Some class IV examples contain a heavy sequence from a Vedic perspective, but were clearly light in the form in which they were inherited:

júryati ‘grow old’ < **ǵrH₂-ye/o-* (**ǵerH₂-*; see LIV² 165–6, EWAia I 577–8);

tūrya- ‘surpass’ < **trH₂-ye/o-* (**terH₂-*; see LIV² 633–4, EWAia I 629–32);

pūrya- ‘become full’ < **plH₁-ye/o-* (**pleH₁-*; see LIV² 482–3, EWAia II 89–90);⁵¹

śrāmyati ‘be tired’ < **kr̥mH₂-ye/o-* (**kr̥emH₂-*; see LIV² 337–8, EWAia 664).

Such secondarily heavy stems do not suggest that Sievers’ Law was not originally applicable to the Indo-European *-*ye/o-* verbal suffix, only that Sievers’ Law did not continue to function as an ongoing constraint in the way in which it may have done in Germanic.

Further examples of sequences that are heavy from a Vedic perspective but were clearly light in the form in which they were inherited include:

śīrya- ‘break/be broken’ < **kr̥H₂-ye/o-* (**kerH₂-*; see LIV² 327–8, EWAia II 617–18);

carcūrya- ‘roam about’ < **k^wlH₁-ye/o-* (**k^welH₁-*; see LIV² 386–7, EWAia I 534–5);

tartūrya- ‘surpass, overcome’ < **trH₂-ye/o-* (**terH₂-*; see LIV² 633–4, EWAia I 629–32).

Leaving aside the originally light character of these roots, it is not likely that *carcūrya-* and *tartūrya-* are ancient, because inherited forms with total reduplication **k^welH₁-k^wlH₁-ye/o-* and **terH₂-trH₂-ye/o-* should have shown a laryngeal reflex.

In a few other cases we find that the *-ya-* passive suffix has been added to stems which already have a present stem affix. It is unlikely that these need to be attributed to a very early stage of the language:

a-hiṁsya- ‘be unharmed’ < **ǵ^hi-n-s-+-ye/o-* (**ǵ^hey^s-*; see LIV² 174–5, EWAia II 820–1).

In addition to the passive *-hiṁsya-*, we have a nasal infix present *hinásti*, 3rd pl. *hiṁsanti*, aor. *hiṁsīt*, perf. *jihīṁsimá*, etc. Clearly this nasal infixed stem was generalized to all stem forms. We cannot know when the passive formed or when and how it acquired its nasal infix. This cannot be regarded as a serious counterexample to Sievers’ Law.

⁵¹ This form is also found with an accented suffix, though not in the Rigveda (see Kulikov 1998:344).

The only two remaining examples of passive forms with potentially heavy sequences cannot actually be projected back very far either:

vr̥ścya- ‘be brought low, cut down’ < **wRsk*^(w)-*ye/o-* (**wResk*^(w)-; see LIV² 701, EWAia II 596).

This form occurs once in Book 10 of the R̥gveda. It is only Indic and its origin is obscure: LIV²’s reconstruction of a root **wResk*^(w)- has no comparative basis. EWAia suggests that the root *vraśc-* ‘cut up’ could result from a resegmentation of an original present **wṛ(k)-s̥ke/o-* (cf. Ved. *vr̥ścá-*). In such a case we could perhaps compare Gk ῥάχαι ‘rags, tatters, wrinkles’ (Aeol. βράχαι) < **wṛk-* (see Frisk 1991: 641). But the structure of the root as it appears in *vr̥ścya-* is unlikely to be very old and could be an innovation of Vedic. Therefore, we cannot use it as evidence when deciding whether Sievers’ Law was applicable, in principle, in the *-*ye/o-* verbal formation in Indo-European.

A more transparent example of such double suffixation is attested:

pr̥cchya- ‘be asked’ < **pr̥k̥-sk̥-ye/o-?* (**prek̥-*; see LIV² 490–1, EWAia II 183–4).⁵²

The putative verbal formation **pr̥k̥-sk̥-ye/o-* cannot realistically be of Indo-European antiquity. It was almost certainly created in Vedic and based on the present formation **pr̥k̥-s̥ke/o-* > Ved. *pr̥ccha-*. This present stem in *-*s̥ke/o-* clearly spread to other stem forms; cf. perfect *papraccha-*.

A genuine ancient heavy sequence might be claimed in some other cases among the class IV verbs, but the particular forms in question raise significant problems of a phonological nature:

s̥víya- ‘sew’ < **siHw-ye/o-* < **syuH-ye/o-?* (**syewH-*; see LIV² 545, EWAia II 734);

dīvyā- ‘play dice, gamble’ as if from **dīHw-ye/o-* < **dyuH-ye/o-* (see EWAia I 729–30).

Understanding the origins of *s̥víya-* and *dīvyā-* is rather difficult. Taking *s̥víya-* to begin with, we have evidence for three different root shapes in Vedic, some of which are supported by comparative evidence, and it is not at all clear how they are to be related to one another. The root *s̥ív-* is only found in Indic and only in the stem *s̥víya-*. Other forms of this root in Sanskrit and in other Indo-European languages suggest a zero-grade **syuH-*; cf. Ved. *syūtá-*, possibly Goth. *siujan*, and Lith. *siúti*. There also seems to be a form of the root without any trace of **y*; cf. Lat. *suere*, *sūtum*, Skt *sūtra-*, Gk ὑμήν, Hitt. *šūil* ‘thread’, all apparently from **suH*₁-. We could understand **suH*₁- as being a simplified form of **syuH-*, but the nature of and motivation for this simplification process is by no means clear. We could suppose that *s̥ív-* is from **siHw-* and that this is related to **syuH-* by a process of laryngeal metathesis, but this process and the somewhat difficult task of deciding which root shape has historical primacy requires further discussion.

⁵² Note that this verbal formation is not identical with the gerundive form *āpr̥cchiya-*, which Sihler (2006:188) cites when arguing against Schindler’s proposal that obstruent clusters were light for Sievers’ Law (see §2.3.4.4).

Laryngeal metathesis is typically posited for zero-grade roots of the shape **CiH-/ *CuH-* which are unexpectedly found beside full-grade roots of the shape **CeH(i)-/ *CeH(u)-*. The prime example of this type of change is the root **peH₃(i)-*, which appears in three distinct forms: **peH₃-* in Ved. *ápāt*, Gk *πῶθι*, etc.; **poH₃(i)-* in **poH₃y-eye-ti* > Ved. *pāyāyati*; and **piH₃-* in Att. *πῖθι*.⁵³ In order to explain the apparent reversal in the order of the semivowel and laryngeal in the zero-grade form, it is often supposed that a sequence **CHIC* underwent a metathesis in the history of Indo-European giving **CIHC*, so that instead of the expected zero-grade **pH₃i-* before a consonant, we actually see reflexes of **piH₃-*.⁵⁴

However, it is not clear that the metathesis proposed to explain the alternation between the roots *sív-* and *syū-* is of the same nature as this, not least because there is a sequence of two semivowels to contend with. Arguably, *syū-* could represent the outcome of **syuH-*, while *sív-* could represent the outcome of **siHw-*. It is difficult to know which form is historically prior, since there is no full-grade form, and so we cannot determine the original position of the laryngeal.

LIV² (545 esp. n. 3) reconstructs a full-grade root **syewH-*, no reflex of which is actually attested, and has to posit a special variety of laryngeal metathesis to change zero-grade **syuH-* into **siHw-*. It is worth noting that this supposed development is very different from the comparatively well-supported change of **CHIC* to **CIHC*, since the laryngeal posited in *sív-* appears earlier in the root than that of *syū-*. Eichner (1988:134–5) argues for such a change (in addition to the ‘regular’ laryngeal metathesis), but the only examples are in Indic and the only ones cited are *sívyati* and *mívati* ‘move’ (< **miH₁w-* beside Lat. *movēre* < **mowH₁-eye-*). Insofar as this particular change is only demonstrable for Indic at best, we could consistently suppose that the root **siHw-* (> *sív-*) did not arise in this form until after Sievers’ Law had ceased to operate automatically. This would be mere stipulation, but in the absence of any firm evidence about the relative chronology, the possibility of such a line of argument does rob *sívyati* of its apparent status as a strong counterexample to the supposition that at one time Sievers’ Law could have applied to the **-ye/o-* verbs in principle.

Another approach would be to suppose that, in fact, *sív-* represents the zero-grade form of a root **syewH-/ *siHw-* (remembering that we have no full-grade form attested which could tell us the original position of the laryngeal).⁵⁵ In that case, it could be *syū-* < **syuH-* that represents the metathesized form, deriving from original **siHw-* before a consonant. This development could be understood purely in terms of the ‘regular’ laryngeal metathesis rule **CHIC* > **CIHC*: a sequence **syHw-C-* could have yielded **sywH-C-*, provided that we are entitled

⁵³ See e.g. Winter (1965:192) and Mayrhofer (1986:175).

⁵⁴ This may not have been the only possible development, since sometimes *CHIC* clusters appear to yield *CiC* (see Kortlandt 1975:2–4, 81, 1981:15, 1988:302; Schrijver 1991:226–30, 237–49, 512–36). I owe my thanks to Dr Nicholas Zair for pointing me towards these references. The language-specific short-vowel developments might suggest that laryngeal metathesis could have been a development of individual Indo-European languages. But, at the same time, it seems rather difficult to accept that a metathesis of this kind was a sufficiently ‘repeatable’ sound change that we can plausibly attribute its independent occurrence to several branches of Indo-European.

⁵⁵ We might be tempted to suppose that **syewH-* should be represented as **syewH-w-*, if constraints on Indo-European root structure are to be observed (see e.g. Penney 1988: esp. 365). However, there is no independent evidence that **-w-* is a root extension in this case.

to regard semivowels as consonants for the purposes of this rule.^{56,57} However, even if all this is granted, we still face the awkward question of why there are two different zero-grade forms at all. If **CHIC* regularly becomes **CIHC*, then *syū-* ought to represent the pre-consonantal variant while **siHw-* ought to be the prevocalic form (cf. *mīvati*). But both shapes are found only before consonants, i.e. *sīvyā-* and *syūtā-*. This logic would suggest that *sīvyā-* could be a replacement for e.g. **siHw-e/o-* vel *sim*. If this were so, then obviously *sīvyā-* could not be relied on to provide evidence about the behaviour of the **-ye/o-* verbal formation in Indo-European, since we would have no reliable guide as to when it was formed.

An exactly parallel situation is found in the case of *dīvyā-* and *dyūtā-*; cf. OAv. *ādiuuīie[n]ti* (Y 44.13; see Cheung 2007:73). We seem to have two different zero-grade root shapes: *dīv-* and *dyū-*. Preforms containing laryngeals together with the potential for metathesis could explain this situation, but once again we have no full-grade forms that could tell us which root shape has historical priority: **diHw-ye/o-* or **dyuH-ye/o-*. In addition, since the connections outside Indo-Iranian are far from certain, reconstructing these forms with laryngeals is correspondingly uncertain.

If we reconstruct an original root **dyuH-* (> *dyū-*, following Werba 1997:350), then Eichner's (1988:134–5) additional laryngeal metathesis rule (based on purely Indo-Iranian evidence: *sīvyati* and *mīvati*) would yield **diHw-* (> *dīv-*). However, if we start from the other logical possibility that **diHw-* was the original root shape, then **dyuH-* can be derived by 'regular' laryngeal metathesis (**CHIC* > **CIHC*), but **diHw-* should have been the prevocalic alternant rather than turning up before *y*.

So, it seems clear that these forms are very difficult to use in determining anything about the applicability of Sievers' Law in this category, since many other aspects of their phonology are not yet properly understood. Depending on our phonological assumptions, we could draw one of several different conclusions. We could conclude that the semivowel in the **-ye/o-* verbal suffix never exhibited syllabicity alternations, no matter what the weight of the preceding sequence might have been, and, from this, draw the conclusion that semivowel syllabicity alternations in Indo-European were limited to certain morphological categories (in spite of the testimony of Germanic). But other possibilities exist. For a form such as *sīvyā-* we could posit an original sequence **syuH-ye/o-* whose metathesis into the possibly heavy sequence in **siHw-ye/o-* might not have occurred until after

⁵⁶ I have deliberately ignored the syllabicity of the semivowels in this formulation. On the one hand, this helps to bring out the parallel between this root shape and the requisite environment for the **CHIC* > **CIHC* sound change. On the other hand, in order to specify the syllabicity, we would need to be sure of the relative chronology of the **CHIC* > **CIHC* change and any other rules affecting Indo-European syllabification. This seems to be beyond what we can accomplish at this stage.

⁵⁷ Reconstructing **syehw-/siHw-* was suggested to me by Dr Nicholas Zair's proposal (pers. comm.) that Ved. *mīvati* could actually represent the *unmetathesized* outcome of the zero grade of a root **myeH₁w-* (though the full grade is unattested in this form, and *pace* LIV² 445–6 which reconstructs **myewH₁-* following Eichner 1988:134–5). On this analysis, the alternative Vedic zero-grade form *-mūta-* < **muH₁-* ← **myuH₁-C* < **myH₁w-C* would be the product of the regular pre-consonantal metathesis **CHIC* > **CIHC*, without the need for positing any additional sound changes for Indo-European. The full-grade form in Lat. *movēre* < **mowH₁-eye-* would have to be a secondary creation on this analysis.

the breakdown of the regular application of Sievers' Law in Indo-Aryan or Indo-Iranian.⁵⁸ Alternatively, we could suppose that the root in **siHw-ye/o-* represents a prevocalic and not a pre-consonantal root variant, thus making the **-ye/o-* suffix a later addition.⁵⁹ These possibilities also exist *mutatis mutandis* for *divya-* and *dyūtá-*. All in all, only one thing seems reasonably clear: we cannot use *sívyā-* or *divyā-* to draw any conclusions about the operation or otherwise of Sievers' Law in the **-ye/o-* verbs; the processes at work are too poorly understood to make any interpretation sufficiently reliable for such purposes.

6.3.3. Conclusions

We have now reviewed the evidence of the Rigvedic examples of primary *-ya-* verbs with overt or etymological consonant-final roots. A disyllabic alternant of the suffix is only found in the class IV present participle *fj-iyat-* (attested twice in one hymn of the Rigveda) and in the imperfect of *ásyati*. The reasons for finding *-iya-* here are unclear, but given the isolated nature of the examples, it seems unlikely that we should assign them too much importance.

In all other verbs we only find *-ya-*, and in almost all instances *-ya-* was preceded by an overtly light sequence which was also light historically, under any analysis, e.g. *úcyati* < **H₁uk-ye/o-*, *dṛhya-* < **dl̥ḡ^h-ye/o-*, *pásyati* < **spek-ye/o-*.

Some examples that originally had a light consonant-final sequence in the root developed a vowel-final root, e.g. *jāyate* < **ḡnH₁-ye/o-*, *niyáte* < **niH-ye/o-*. In their consonant-final form or in their vowel-final form, the expected suffix alternant would be **-ye/o-* or *-ya-* at all stages and on any analysis.

Other sequences that were originally light only became heavy within the history of Old Indo-Aryan, e.g. *júryati* < **ḡrH₂-ye/o-*, *túrya-* < **trH₂-ye/o-*. Such examples can only serve to provide chronological information about historical stages at which Sievers' Law did *not* apply, rather than being counterexamples to Sievers' Law, if it is reconstructed for a sufficiently early stage of the language.

Sometimes the light nature of the sequence preceding *-ya-* depends to a certain extent on our initial assumptions. Some examples had a word-initial sequence of obstruents, including a laryngeal, preceding **-ye/o-*. Sometimes the laryngeal left a reflex and sometimes it did not, but in no case did this trigger the disyllabic alternant of the suffix, e.g. *sidhyati* < **sHd^h-ye/o-*, *dyāti* < **dH₁-ye/o-*.⁶⁰ The absence of a laryngeal reflex is not terribly surprising in an Indic context. But the lack of any trace of a disyllabic verbal suffix **-iya-* deserves comment. This outcome could

⁵⁸ If there was ever a stage with **siwH-ye/o-* rather than **syuH-ye/o-*, the weight of the sequence might depend, in part, on the relative chronology of Pinault's rule and Sievers' Law.

⁵⁹ I have left to one side in this discussion the possibility of invoking Schindler's idea that syllabicity alternations were limited to the final syllable of the word and that in verbal paradigms syllabic variants would have been limited to the 1st sg. and the imperfect. As I have already argued, this is such a powerful explanatory mechanism that practically any potential distribution of data should, in principle, be explicable in this way. It is difficult, therefore, to imagine how the truth or otherwise of this idea could be scrutinized in any meaningful way.

⁶⁰ Where the laryngeal in a word-initial sequence immediately preceded the verbal suffix, the result is ambiguous: it is not clear whether we should suppose that the *[i]* in *dhiyáte* < **d^hH₁-ye/o-* represents the outcome of a disyllabic suffix *-iya-* or the reflex of the laryngeal.

be because Schindler was right about the status of obstruent clusters, or because word-initial alternations were not regular except in monosyllabic forms, or because there was an anaptyctic vowel in such sequences which broke up the cluster at a stage early enough to constitute a light sequence for Sievers' Law, or, finally, because the *-ye/o- verbal suffix was invariant. The question is undecidable on the basis of such examples. The wider issues must be decided on independent grounds before such examples can be fully understood.

There are also word-internal examples with a *-CHy- sequence. We consistently fail to find a reflex of the laryngeal, and this may be due to Pinault's rule, e.g. *jasya-* < *(s)g^wesH₂-ye/o-, *īsyati* < *H₁isH₂-ye/o-, *mathya-* < *m^hntH₂-ye/o-.

A few examples show a heavy sequence before -ya-, and these are generally of a clearly secondary character, e.g. *a-him̐sya-* < *g^hi-n-s- + -ye/o-, *vr̥ścyā-* < *w^rRsk^(w)-ye/o-, *pṛcchya* < *pṛk-sk̐-ye/o-. A couple of examples could be ancient, but it is very difficult to know about the original weight of the sequence in the root and the antiquity of the forms in question. In the case of *sīvyā-* it is difficult to know whether we should expect the root shape *siHw- or *syuH- to have historical priority; if the normal rules of laryngeal metathesis applied, then *siHw- should be earlier, but we would only expect *siHw- to be preserved in a prevocalic environment, which rules out a very early date for the putative *siHw-ye/o-; on the other hand, if *syuH- is earlier, a different rule of laryngeal metathesis would have to be invoked to explain *siHw-, and this would be of an exclusively Indic character, still making the antiquity of the heavy sequence suspect. The same considerations apply to the potential antiquity and interpretation of *dīvyā-*.

The prevalence of light sequences among the -ya- verbs has a good morphological justification. Most -ya- verbs were built from a zero-grade root, and the structure of Indo-European roots is such that this would naturally constitute a light sequence for Sievers' Law in all but the rarest of cases. We would only expect to find a heavy zero grade in roots of the shape *CRHC-, which are not easily reconstructible for Indo-European, or extended roots of the shape *CRH-C-, which are not demonstrable among the verbs we have been looking at. There are -ya- verbs with full-grade roots, and we might have expected countless heavy sequences to arise from such a source. But the distribution of this formation is extremely restricted. It is regular among roots of the shape TeT-, e.g. *pácya-* < *pek^w-ye/o-, and the formation is probably motivated in these cases by phonotactic constraints; this kind of formation only results in light sequences. Similar considerations probably apply to *jasya-* < *(s)g^wesH₂-ye/o- with laryngeal loss attributable to Pinault's rule. All the other Vedic examples of full-grade -ya- verbs are suspect. Examples such as *madya-* < *med-ye/o- rather than *adya- (< *m̐d-ye/o-) are difficult to use as support for a fully fledged Indo-European full-grade *-ye/o- formation, because it is easy to see why any potentially inherited zero-grade formation might have undergone replacement: the allomorphy entailed by the development of syllabic nasals to *a would have become unsupportable synchronically, and prompted replacement by a full-grade root. In other cases it is reasonably clear that we are dealing with a variety of secondary formations. Furthermore we fail to find any comparative evidence to support any of the Rigvedic full-grade forms which do stand a chance of being reasonably old, such as *āsyati* or *hāryati*.

From this perspective it is a lot clearer why there is such a paucity of -ya- verbs with heavy consonant-final roots. The fact that we do not find any evidence for

truly ancient heavy sequences preceding **y* leaves open the possibility that Sievers' Law would have applied in principle to the *-*ye/o-* verbs at an early stage, though the phonological circumstances appropriate to the putative disyllabic verbal suffix *-*iya-* probably never arose for morphological reasons. Therefore, the invariance of the -*ya-* suffix in Vedic need not indicate that Sievers' Law was only applicable in certain morphological categories.

6.4. UNDERSTANDING THE GREEK VERBAL EVIDENCE

For a number of reasons it is a far more difficult matter to investigate the *-*ye/o-* formations of Greek than it was for Vedic, not least because in Vedic we had to deal only with examples attested in the one text which preserves Sievers' Law phenomena, i.e. the Rigveda. In Greek, on the other hand, we may find *-*ye/o-* verbs attested at any stage in the history of the language, and insofar as they truly reflect *-*ye/o-* verbs, they must be of a certain degree of antiquity, and there is no general reason why they could not potentially bear on the question of the validity of Sievers' Law.

6.4.1. The Prevalence of Heavy Sequences

We saw that the -*ya-* verbal suffix was usually preceded by light sequences in the Rigveda, for good morphological reasons. However, the same cannot be said for Greek. We find a great many verbs where what appear to be the products of palatalization follow a heavy sequence, or certain etymological presuppositions would lead us to reconstruct a heavy sequence in the history of Greek.

In some cases we may reasonably suspect examples of being potential counterexamples to Sievers' Law on purely surface phonological criteria, because they contain a long vowel or a vowel + consonant sequence preceding what look like the products of palatalization:

ἀγρώσσω (§7.1.8.3)	λεῦ(σ)σω (§7.2.3.11)
ἀμβλυώσσω (§6.5.1)	λίμωσσω (§6.5.1)
βήσσω (§6.5.2)	λοιμώσσω (§6.5.1)
βρήσσω (§6.5.2)	μαιμώσσω (§6.5.1)
γλαύσσω (§7.2.3.3)	νῖ(σ)σομαι (§6.7.1)
γνάμπτω (§6.5.5)	οἷζω (§6.5.2)
δουσοίζω (§6.5.2)	οἰμώζω (§6.5.2)
ἐγρήσσω (§6.6)	ὄνειρώσσω (§6.5.1)
ἑρᾶσσω (§7.2.1.2)	παίζω (§7.1.11.1)
ἑωρήσσω (§7.1.14)	πήςσω (§6.7.5)
κάμπτω (§7.2.2.4)	πλήσσω (§6.7.5)
καρδιώσσω (§6.5.1)	πρήσσω and Cret. πράδδω (§6.7.5)
κλώζω (§6.5.2)	πτήσσω (§7.2.3.8)
κλώσσω (§6.6)	πτιλώσσω (§6.5.1)
κνώσσω (§6.6)	πτώσσω (§7.1.11.2)
λαιμώσσω (§6.5.1)	ρήσσοντες (§6.7.5)

σκήπτομαι (§7.1.14.2)	ὕγρῶσσω (§6.5.1)
σκίμπτομαι (§6.5.5)	ὕπνῶσσω (§6.5.1)
σκώπτω (§6.6)	χρέμπτομαι (§6.5.5)
τιθαμβώσσω (§6.6)	χρίμπτω (§6.5.5)
τυφλώσσω (§6.5.1)	ὥζω (§6.5.2).

In other cases, it seems possible that certain verbs contained a potentially heavy sequence before the **-ye/o-* suffix at a certain stage in their history, if we follow a particular etymological analysis, even if we can no longer tell as much from the surface phonology:

- ἄάω if from **H₂ewH₂-ye/o-* (§6.8.1.5);
- ἄεται if from **sH₂-ye/o-* (§6.8.1.4);
- ἄζομαι if from **H₂d-ye/o-* (§6.8.1.1);
- ἄϊσσω if from a stem in **-ik-ye/o-* (§7.2.2.3);
- ἄλᾶομαι if from **H₂elH₂-ye/o-* (§6.8.1.5);
- ἀμαρύσσω if from **amarūK-ye/o-* (§6.5.3);
- ἀνάσσω if from **anakt-ye/o-* (§7.1.11.1);
- ἀνθέω if from **H₂nd^h-H₁ye/o-* (chapter 6, n. 2);
- ἄπτω if from **H₂p-ye/o-* (§6.8.1.1);
- ἄρόω if from **H₂erH₃-ye/o-* (§6.8.1.5);
- ἄττομαι if from **ant-ye/o-* (§6.7.3);
- αὔξομαι if from **H₂uks-ye/o-* or **H₂ewks-ye/o-* (§6.8.2.3);
- γελάω if from **ġelH₂-ye/o-* or **ġelH₂-s-ye/o-* (§6.8.1.6);
- γηράω if from **ġērH₂-ye/o-* (§6.8.1.6);
- δέω if from **dH₁-ye/o-* (§6.8.1.4);
- δρυφάσσω if from **dru-p^h(r)ak-t-ye/o-* (§7.1.8.3);
- ἐλάυνω if from **elawn-ye/o-* (§§3.5.1.3 and 7.1.3.2);
- Elean verbs in -εῖω (cf. -εὔω) if from **-ēw-ye/o-* (§7.1.5.2);
- ἐνίσσω if from **enīk^w-ye/o-* (of whatever origin, §7.4.1.11);
- ἔρδω if from **werg-ye/o-* (§7.2.3.6);
- ἔχραισμε if from **e-k^hraysm-ye/o-* (§7.1.4.2);
- θαρσέω if from **d^hrs-H₁ye/o-* (chapter 6, n. 2);
- θάσσω if from **t^hāk-ye/o-* (§7.1.14);
- θαμίσσει if from **t^hōminK-ye/o-* (§6.7.5);
- ἰαύω if from **iaws-ye/o-* (§6.8.2.1);
- ἰδρώω if from **swid-r-ōs-ye/o-* (§7.1.5.1);
- ἰμάσσω if from **himant-ye/o-* (chapter 7, n. 2);
- κηρύσσω if from **kārūk-ye/o-* (§7.1.11.1);
- κλάζω if from **klang-ye/o-* (§7.4.2.2);
- κράζω if from **kräg-ye/o-* (§6.5.2);

- κρίζω if from **krīg-ye/o-* (§6.5.2);
 λάζομαι if from **sl̥H₂gʷ-ye/o-* (§6.7.4);
 λαρύζει if from **larung-ye/o-* (§7.1.14);
 μαλάσσω if from **m̥l̥H₂k-ye/o-* (§7.1.9.1);
 μαστίζω if from **mastīg-ye/o-* (§6.5);
 ὄζω if from **H₃d-ye/o-* (§6.8.1.1);
 οἰκτίζω if from **oyktr̥-ye/o-* (§7.1.4.2);
 ὀλολύζω if from **ololūg-ye/o-* (§6.5.4);
 ὀσσομαι if from **H₃kʷ-ye/o-* (§6.8.1.1);
 πάσσω if from *(*s*)*kuH₁t-ye/o-* (§6.8.4);
 πλάζω if from **plang-ye/o-* (§7.4.2.2);
 προίσσομαι if from **pro-hīk-ye/o-* (§7.1.14);
 πτίσσω if from **pi-n-s-ye/o-* (§6.7.1);
 ῥαθαμίζω if from **ratʰamiŋg-ye/o-* (§7.1.14);
 ῥιγέω if from *sriHg-H₁ye/o-* (chapter 6, n. 2);
 ῥιγώω if from **sriHg-ōs-ye/o-* (§7.1.5.1);
 ῥίπτω if from **wriHp-ye/o-* (§7.2.1.2);
 σαλπίζω if from **salpiŋg-ye/o-* (§7.1.14);
 σπάω if from **spH₂-ye/o-* (§6.8.1.4);
 στηρίζω if from **stēriŋg-ye/o-* (§7.1.14);
 στροφαλίζω if from **strophʰaliŋg-ye/o-* (§7.1.14);
 συρίζω if from **suriŋg-ye/o-* (§7.1.14);
 ταράσσω if from **dʰr̥H₂gʰ-ye/o-* (§6.7.2);
 τρύζω if from **trūg-ye/o-* (§6.5.4);
 φαείνω if from **pʰa-wes-n-ye/o-* (§7.1.8.2);
 φοινίσσω if from **pʰoynīk-ye/o-* (§7.1.9.1);
 φορμίζω if from **pʰormiŋg-ye/o-* (§7.1.14);
 φρίσσω if from **bʰriHk-ye/o-* (§7.1.14.1);
 φρύσσω if from **pʰrūk-ye/o-* (§6.7.5);
 ὠδίνω if from **ōdīn-ye/o-* (§7.1.10).

Depending on our etymological assumptions in each case, these examples taken as a whole could present a serious objection to the hypothesis that Sievers' Law was ever operative in early Greek, as a phonological principle in the grammar. If we are seriously to entertain the idea that the *-ye/o- suffix was subject to Sievers' Law, in principle, then we need to explain not only these potential counterexamples, but also the lack of an *-iye/o- suffix in these or any other Greek verbs.

To this end we cannot simply confine our attention to the exceptions to Sievers' Law. We need to establish how the Greek *-ye/o- formation developed from its Indo-European origins. Furthermore, we will attempt to establish a chronology

of potential **-ye/o-* verbs on the basis of various morphological, phonological, semantic, and syntactic features. If we can establish which examples are early and which are formed later, we may be better able to assess the bearing of these counterexamples on Sievers' Law.

A central difficulty in such an investigation lies in the fact that we only have indirect evidence for **-ye/o-* verbs in Greek. We cannot automatically reconstruct a **-ye/o-* verb wherever we see what appears to be the reflex of a consonant plus **y* sequence. Matters are complicated by the existence of a series of secondary suffixes which resemble the outcomes of palatalizations. In addition, we have evidence that some apparent **-ye/o-* verbs are, in fact, analogical formations.

We also find a great many examples that are phonologically ambiguous, either with regard to the weight of the sequence preceding the **-ye/o-* suffix, or else with regard to the legitimacy of positing a **-ye/o-* verb in the first place.

6.4.2. Chronological Limitations

For purely practical reasons, it will prove necessary to impose a chronological limit on the examples which we attempt to consider exhaustively. Otherwise, we would be faced with the prospect of looking at the evidence of all manner of later analogical formations, in order to capture one or two potentially ancient examples which happen to be attested late. For example, we find a verb *μορύσσω* 'defile, blacken', which itself only occurs in Eustathius. Even though the perfect is in Homer and the aorist is in Nicander, we will not discuss examples like this, where the putative **-ye/o-* verb itself is attested at a late period, regardless of whether it could be a real **-ye/o-* verb. In a similar vein, we will not consider a case such as the Homeric verb *πορφύρω* 'boil, surge', which is used of the sea, and metaphorically of the heart;⁶¹ it occurs only in the forms *πόρφυρε* and *πορφύρη* in Homer and these could be an imperfect indicative and a present subjunctive respectively. But they could also be unaugmented sigmatic aorist formations. We only have unambiguous present stem forms later, e.g. in Aratus, Theocritus, and Apollonius Rhodius. So even if the etymology of the root were clear, which it is not, it would still be perfectly possible on the basis of the ambiguous Homeric evidence to suppose that the present *πορφύρω* represents a late secondary creation.

We will endeavour to consider all relevant evidence attested prior to the Hellenistic period. However, in order to ensure that arbitrary chronological limits do not prejudice the outcome of the enquiry, we will attempt to examine all potential *counterexamples* to any of the formulations of Sievers' Law under consideration, regardless of their date of attestation.

6.4.3. Organization of the Material

Before we can properly assess the properties of the **-ye/o-* verbs in Greek, we need to review the apparent examples of **-ye/o-* verbs that are *unsuitable* for our

⁶¹ This verb is to be distinguished from the Hellenistic denominative *πορφύρω* 'dye purple, make red', which seems to be derived from *πορφύρα* 'purple dye'.

enquiry, either because a close analysis shows that they contain suffixes other than *-ye/o-, or because it is possible to show that they were secondarily built by analogical processes. This will be our focus for the remainder of this chapter, and only in the next chapter will we go on to produce a roster of the evidence that can sensibly be brought to bear on the question of early patterns of semivowel syllabification.

We will begin with various categories of secondary suffixation, before looking at examples that resemble the reflexes of *-ye/o- verbs, but are etymologically completely obscure. We will then consider examples which cannot represent ancient *-ye/o- verbs without producing some serious phonological problems, before discussing categories of ambiguous evidence, where the nature of the examples is such that we are either unable to establish whether we should reconstruct a *-ye/o- suffix at all, or we are unable to determine the weight of the sequence which preceded a *-ye/o- suffix.

6.5. EXAMPLES WITH SECONDARY SUFFIXATION

A great many verbal formations which, at first glance, seem to have the *-ye/o- suffix turn out to involve one of a range of secondary suffixes. Indeed, many superficial counterexamples to Sievers' Law can be dismissed fairly easily on these grounds. For most examples, it is sufficiently obvious that the suffix *-ye/o- is not involved, and we need not dwell on them here.⁶² Nevertheless, it is worth making a brief summary of the examples and categories of examples that need to be excluded from consideration.

We exclude from this study forms with the suffix -σσε/o-. These include ἀρύ-σσομαι 'draw for oneself', ἀλύ-σσω 'be uneasy, restless', ἀφύ-σσω 'draw liquids', ἀφά-σσω 'touch', ἀπτερύ-σσομαι 'flap the wings', ἐρέ(-)σσω 'row, speed by rowing',⁶³ χῖνυ-σσομαι 'waver, sway back and forth', κλαδῶ-σσομαι 'run violently, surge', λαπά-σσω 'empty', βδελύ-σσομαι 'feel loathing for', ἄρῶ-σσω 'smite, dash in pieces', αἰμά-σσω 'make bloody, stain with blood', παϊρά-σσω 'dash, dart, quiver', ἀρμό-σσω 'fit together; fit well', and μαιμά-σσω 'be eager, excited'.

Similarly we will exclude examples with -ασσε/o-: παλ-άσσω 'besprinkle, defile', ψαλ-άσσω 'touch lightly', σπαρ-άσσω 'rend asunder', μυσ-άττομαι 'feel

⁶² For discussion and morphological analysis of these and other examples, see Barber (2007:245–307).

⁶³ It seems that ἐρέσσω is a replacement for the formation suggested by Myc. <e-re-e> (PY An 724), which has been interpreted as an infinitive form [erehen] perhaps from an athematic verb *erēmi (see e.g. Chantraine 1999:1398; cf. Hajnal 1995:237–8; and see Plath 1990:169–82 for the range of possible interpretations). It is possible that ἐρέσσω is a post-Mycenaean innovation, though this cannot be demonstrated conclusively. It seems probable that this is a formation with a -σσε/o- suffix, with the aor. ἐρέσ(σ)αι being pivotal.

This interpretation contrasts with the usual view that ἐρέσσω is a *-ye/o- denominative verb based on ἐρέτης 'rower' (cf. Myc. <e-re-ta> (KN As 5941) = [eretai] 'rowers' with the near word equation in Ved. ari-tár-) <*H₁erH₁-. But such a derivation would be unique: the implicit resegmentation of ἐρέτης as ἐρέτ-ης seems rather unmotivated, and there are no parallel examples of such a denominative formation from an agent noun of this kind.

The only lingering reason for seeing the stem *eret- as having a reasonable degree of antiquity is the existence of ἐρετμόν. It is difficult to find a conclusive argument to decide the matter.

disgust at, loathe', λαίμη-άσσω 'be greedy, hungry', σαλ-άσσω 'shake', ἀλλ-άσσω 'change, exchange, leave, have dealings',⁶⁴ possibly τιν-άσσω 'shake, brandish', and στωλ-άσσω 'let drop, drop'.

There are a few examples with -ισσε/ο-: αἶν-ίσομαι 'speak darkly, speak in riddles', κυρ-ίσσω 'butt with the horns, butt against', and δεῖδ-ίσσομαι 'frighten; fear'.

We find a suffix -υζε/ο- in forms such as ἐρπ-ύζω 'creep, crawl' beside ἔρπω etc.

There are also a few forms with -τιζε/ο- such as πειρη-τίζω 'attempt, try, prove' beside πεῖρᾶ.

There are very large numbers of examples with the suffix -άζε/ο-, e.g. μῖν-άζω 'wait, stay; await, expect' beside μῖνω, etc.; ἀτιμ-άζω 'hold in no honour' beside ἀτιμάω; παππ-άζω 'call πάππα'. There are also a great many forms in -ιζε/ο-, e.g. ὕβρ-ίζω 'run riot; maltreat, insult' beside ὕβρις, gen. -εως; αἶν-ίζομαι 'praise, approve' beside αἶνος; and ἀλεγ-ίζω 'care for, heed; be troubled' beside ἀλέγω. It would be undesirable and impractical to list all possible examples in this context.

Sometimes examples are of ambiguous derivation. For example, if μαστίζω 'whip, thrash' (Anaximen., Theoc., Ar.) is a *-ye/o- denominative built from μάστιξ, μάστιγος 'whip', then it would constitute a counterexample to Sievers' Law. But there are also traces of an *i*-stem form, e.g. acc. μάστιν (Hom.) and a collateral denominative μαστίω 'whip'. So μαστίζω could equally well represent an -ιζω verb based on the *i*-stem noun, or indeed it could be derivative from μαστίω. Such evidence cannot be used with confidence in our enquiry.

We find miscellaneous formations involving -λλ-, e.g. ἀγάλλομαι 'exult in' (Hom.), which could represent a denominative *agal-yo-mai, formed from a base noun *agalos, but such a noun is not attested. There might also be links with verbs like ἄγαμαι 'envy'. We cannot be certain that ἀγάλλομαι ever had a *-ye/o- suffix, because we have no independent evidence for a stem *agal-. Similarly, μιστύλλω 'cut up meat' might involve secondary suffixation, if it is comparable with Goth. *maitan* 'injure'.

There are very many formations with the suffix -αινε/ο-, such as λευκαίνω 'make white' from λευκός. Individual examples exhibiting this suffix cannot make a contribution to our understanding of the behaviour of semivowels, since in any given case it is impossible to know whether *y itself was involved.⁶⁵

In what follows we will focus on potential counterexamples to Sievers' Law, where a plausible interpretation of the evidence could lead us to reconstruct a *-ye/o- suffix preceded by a heavy sequence, but a closer analysis reveals that other suffixes are actually involved.

⁶⁴ There are formal problems with assuming that ἀλλάσσω is a *-ye/o- verb; cf. the voiced velar in ἀλλαγήσομαι (Hdt.2.120 etc.), ἡλλάγην, ἀλλαγή 'change', and Locr. ἀλλάζω. A voiceless velar is found in ἀλλαχῇ 'elsewhere, in another place' (adv. in X.An.7.3.47), but the semantics and the syntactic category of this form do not make it a promising base for the verb. It seems best to see ἀλλάσσω as a direct derivative from ἄλλος with the suffix -ασσω.

⁶⁵ Examples such as ἐρυθρός 'red' beside ἐρυθραίνομαι 'become red' are ambiguous. It could be that we have a verb suffixed with -αινε/ο-, or that we have traces of an archaic *r/n*-stem, with different parts of the original stem allomorphy appearing in the adjective and related *-ye/o- verb. Given such ambiguity, it is probably best to leave cases like this to one side, in order to concentrate on examples that are more firmly established as *-ye/o- verbs.

6.5.1. Forms in -ωσσε/o-

A number of Greek verbs have a stem terminating in -ωσσε/o-:

- ἀμβλῦσσω 'be short-sighted, have weak sight' (e.g. Hp.*Prorrh.*2.42), cf. ἀμβλῦς 'blunt, dulled';
 πτιλῶσσω 'have sore eyes, have πτιλῶσις' (e.g. Archyt.ap.Simp. in Arist.*Cat.*395.35.), cf. πτιλός 'suffering from πτιλῶσις';
 καρδιῶσσω 'have heartburn, stomach-ache' (Hp.*Prog.*24), cf. Hom. καρδίη 'heart';
 ὑπνῶσσω 'be sleepy, drowsy; sleep' (e.g. A.*Eu.*121, E.*Or.*173), cf. Hom. ὕπνος 'sleep, slumber';
 ὄνειρῶσσω 'dream' (e.g. Hp.*Morb.*2.51, Att. -ττω Pl.*R.*476c), cf. Hom. ὄνειρος or -ον 'dream';
 λαμῶσσω 'be greedy, hungry' (Hippon.76), cf. λαμῶς 'throat, gullet';
 ὑγρῶσσω 'moisten' (A.*Ag.*1329), cf. Hom. ὑγρός 'moist, wet';
 λιμῶσσω (Str., J.), cf. λιμός 'hunger, famine';
 λοιμῶσσω 'suffer from plague' (Gal., Luc.) beside λοιμός 'plague' (Hom.);
 μαμῶσσω (Nic.) deverbal from Hom. μαμάω 'be eager, rage' with the same meaning;
 τυφλῶσσω 'go/be blind' (Hellenistic etc.), cf. τυφλός 'blind, dark, blocked' (Hom. etc.).

We would certainly hesitate to attribute great antiquity to this formation, because all the examples are post-Homeric, and, more to the point, we can be sure that -ωσσε/o- is a suffix in practically all of these examples. In themselves, forms with suffixal -ωσσε/o- cannot provide evidence about the behaviour of *y. The question of the origin of -ωσσε/o- obviously needs to be addressed, since a configuration of a long vowel followed by what looks like the outcome of palatalization raises the prospect of a genuine counterexample to Sievers' Law serving as the model for this formation.

The traditional view is that the whole category originates from ἀμβλῦσσω, which may be a denominative *-ye/o- verb, if it was formed from a compound base ἀμβλυωπός 'dim-sighted' by deletion of the thematic vowel.⁶⁶ The second element of the compound is the same labiovelar final root as we find in ὄσσομαι 'see, look' (e.g. Od.1.115) and the future ὀφθῶμαι; cf. ὄσσε 'two eyes' (Il.13.435) < *H₃(e)k^w-. A suffix -ωσσε/o- could have been abstracted if the verb was reanalysed as being derived directly from ἀμβλῦς 'blunt, dulled, sluggish' (e.g. A.*Eu.*238). This may have been facilitated by the use of this adjective in various expressions denoting poor sight, e.g. ἀμβλὺ ὄραν, ἀμβλῦτερον βλέπειν, etc. 'dim of sight' (e.g.

⁶⁶ Alternatively, following Frisk (1973:89–90), we could suppose it was derived from an unattested *amblyōps. If the base were *amblyōps, then it would be unclear why we have what appears to be a lengthened grade verbal formation. If the example were very ancient, the general pattern of denominative formation in Greek would lead us to expect a zero grade in the final element of the verbal stem built from a base form without a thematic vowel, as we shall see presently when we discuss denominative formations. But a putative *ambly-H₃k^w-yō would have yielded *amblyōsō. We would only expect the zero-grade form to give ἀμβλῦσσω under the assumptions of Francis (1970:276–84) and Normier (1977:182–4, 1980a:273) that *-uH₃- > *-wō-, and Klein's (1988) view that Sievers' Law applied to the outcome of such sequences, giving *-uwō-. On the difficulty of accepting these developments, see §3.5.2.

Pl.*Tht.*174e). The resulting derived denominative suffix *-ωσσε/o-* could then be used to form all manner of verbs, generally denoting physical states and illnesses.

An obvious impediment to the view that this is an ancient **-ye/o-* denominative is the fact that old **-ye/o-* denominatives built from compounds are extremely rare: leaving aside forms with vowel-final stems, the certain examples are limited to εὐφραίνω ‘make happy’ (from εὖ-φρων ‘happy, well-disposed’) and ἀφραίνω ‘be foolish’ (from ἄ-φρων ‘foolish’). There are no convincing parallel examples of **-ye/o-* verbs derived from compounds with thematic vowel deletion.⁶⁷

It might be possible to construct a more convincing account of the origin of this category. A few of these denominative examples in *-ωσσω* would otherwise look like ideal candidates for forming *-οω* verbs.⁶⁸ At an early stage there were originally two distinct types of denominative formations which later went on to develop present stems in *-οω* (see Tucker 1981:16–19). The first type built perfect middles from nouns, e.g. *κεχόλωται* ‘he is in a state of being affected by anger (*χόλος*)’. The second type built sigmatic aorists from adjectives and these have a characteristically factitive meaning, e.g. *ὤρθωσε* ‘he set upright (*ὀρθός*)’.

It could be that *-ωσσε/o-* verbs arose analogically out of the same denominative system that gave rise to the *-όω* verbs. We have a perfect *ὑπνωμένος* ‘asleep’ in Herodotus, which could well be formed directly from the noun *ὑπνος*. The present *ὑπνώσσω* could simply constitute an alternative way of building a present stem, probably originally using the *-σσ-* verbal suffix (see §6.5). This verb, denoting the state of being sleepy, may have been formed in preference to **hupnōō*, which, according to Tucker’s (1981) classification would probably have had an ‘instrumental’ meaning such as **‘make someone be affected by sleep’*; cf. *οἰνώω* ‘make drunk’ from *οἶνος* ‘wine’.

The transitive nature of *ὑγρώσσω* ‘moisten’ could result from its deadjectival status, just as we find transitive deadjectival sigmatic aorists like *ὤρθωσε* ‘he set upright’ beside *ὀρθός*. However, no aorist is attested beside *ὑγρός*.

It does not seem likely that we should take any members of this category as serious counterexamples to Sievers’ Law.

6.5.2. Onomatopoeic Formations

We find a considerable number of forms terminating in *-οιζω*, *-ωζω*, *-ᾶζω*, and *-ῖζω*, such as *δυσσοιζω* ‘wail, be in fear’ (A., E., Hsch.), *οἰζω* ‘*id.*’ (A.D.), *κλώζω* ‘cackle’ (D. etc.), *οἰμώζω* ‘wail, cry’ (Hom.), *ὠζω* ‘say oh’ (Ar.), *κροᾶζω* ‘croak, cry’ (Ar. etc., cf. perf. *κέκροαγα*), and *κρίζω* ‘scream, creak’ (Men., cf. perf. pple *κεκρίγότες*). If these went back to **-ye/o-* verbs, then they would appear to represent counterexamples to Sievers’ Law. But no substantial conclusions can be drawn from these, because they are all likely to be part of a wider class of onomatopoeic verbs with a suffix *-ζε/o-*, rather than **-ye/o-*.

The existence of onomatopoeic *-ζε/o-* (and occasional *-υζε/o-*) formations is not difficult to demonstrate, since there are endless examples denoting noises

⁶⁷ For a discussion of potential examples of **-ye/o-* denominatives from compounds, see §7.1.8.3.

⁶⁸ I am very grateful to Dr John Penney and Dr Elizabeth Tucker, who both pointed this out to me independently.

that lack a suitable related stem ending in a voiced velar or dental from which a **-ye/o-* verb could have been derived. Usually these verbs are confined to the present tense, but where other tense stems do exist, these naturally involve a stem-final voiced dental or velar; however, these can usually be explained in a straightforward fashion as being back-formed from the *-ζε/o-* present stem. Examples include Hom. ἰύζω ‘cry aloud’ beside ἰῦ (Hdn.Gr.1.506, cf. ἰού, ἰώ, ἰαῦ) and τρύζω ‘coo, murmur’ (Hom. etc.). We may also class as onomatopoeic verbs such as ἄράζω ‘snarl, growl (of dogs)’ (D.H.), βάζω ‘speak’ (which need not be a **-ye/o-* verb, in spite of Hom. βέβηκται), βαβάζω ‘chatter’, βαβράζω ‘chirp’, βλύζω ‘bubble, gush forth’, which is unlikely to be a **-ye/o-* verb in spite of the adjective βλύδιον ‘humid, seething’ (Hsch.), γλάζω ‘sing aloud’ (Pi.), εἰάζω ‘call εἶα’ (E., cf. εἶα ‘hey, come on’), γογγύζω ‘murmur, grumble’ (LXX), γογγυρίζειν ‘sound like a pig’ (Hsch.), κνυζέομαι ‘whine, whimper’ (S. etc.), πιπιρίζω ‘beep’ (Ar.), ποπύζω ‘click the tongue’ (S.Fr., Ar., etc.), ῥύζω ‘growl’ (Hermipp., Poll.), σίζω ‘hiss’ (Hom. etc.), σπίζω ‘squeak, chirp’ (Arat., Thphr.), τρίζω ‘buzz, squeak’ (Hom. etc.), and ὠύζω ‘make the sound u-u’ (Poll.).

Somehow, οἰμύζω ‘wail, lament’ must be from οἶμοι, though we might have expected **oimoizdō*. Similarly, οἴζω/οἴζω (A.D.) is from the interjection οἶ (trag./Ion.) and οἶ (Ar.), as is δυσοίζω ‘wail, be in fear’ (A., E., Hsch.). In each case the **-ye/o-* suffix was clearly not involved.

It seems unlikely that we should attribute any great antiquity to κράζω ‘croak, cry’ (Ar. etc.). Although it has a full verbal system, cf. perf. κέκραγα, aor. ἔκραγον, etc., it seems better to suppose that this started out as an onomatopoeic verb and that the rest of the system was filled out starting from the present stem.

Beside κρίζω ‘scream, creak’ (Men.), we find a perf. pple κερκρίγότες (Ar.), aor. -κρίγειν (S.) and also a form with a voiceless velar κρίκε (hapax in Hom.). In light of this variation in the root-final velar, it is unclear whether we should compare ON *hrika* ‘creak’ < **krig-* or Lith. *krýkti*, Russ. *kričát’* ‘cry’ < **krik-*. Indeed, given the transparently onomatopoeic nature of the verb, it is far from clear that reconstruction is warranted in this instance. The close relationship between form and meaning make it just as likely that κρίζω is an innovation rather than an inheritance.

In a similar fashion, it is possible that κρώζω ‘croak, creak’ (Hes. etc.) could be compared with Lith. *kriogúoju* ‘speak hoarsely’ and ON *hrókr* ‘crow’, or, if the difference in the root-final velar is overlooked, with Lat. *crōcīre* and Lith. *kr(i)ðkti*. But such evidence is not sufficient to guarantee that this root or this formation is inherited.

In some cases more than one analysis is possible. Traditionally μύζω ‘suck’ (Hp., X.) and ‘moan, mutter’ (A., Ar., etc.) has been compared with μυδάω ‘be moist, decay’, though the semantics are not close. If they were cognate, then it would be possible to suppose a root **mud-* with a **-ye/o-* suffix. On the other hand, μύζω might have nothing to do with μυδάω, and could simply be mimetic, based on the pursing of the lips, with a suffix *-ζε/o-*.

It seems likely that φλύζω ‘boil over, bubble up, babble’ is a *-ζε/o-* formation built from the synonymous φλύω. There are forms with a velar stem such as φλυγέω, and this makes it possible to suppose **pʰlug-ye/o-*. But, given the etymologically unsupported nature of the velar stem, it seems more likely that φλυγέω etc. are back-formed from φλύζω.

The status of λαλάζω ‘babble’ (Anacr.) is uncertain, as it could be an -άζω verb from λάλος ‘chattering’, or a possible *-ye/o- verb from the extended stem found in λολαγέω ‘babble’. The uncertainty makes it unsuitable for use in our enquiry.

Of course, not all onomatopoeic verbs involve a suffix -ζε/o-. It seems likely that λάπτω ‘lap with the tongue’ is also onomatopoeic, and the obvious parallel roots in various Indo-European languages (see Beekes 2010:834) do not guarantee an Indo-European origin. Nor can we be certain of a *-ye/o- suffix here.

It seems likely that βήσσω ‘cough’ (Hp.Epid.1.3, aor. ἔβηξα, Hdt.6.107) is also onomatopoeic. There is a temptation to suppose that it is a denominative *bēk^h-ye/o- from the noun βήξ, βηχός ‘cough’ (Th.2.49, Hp.Prog.14). But it is just as likely that βήσσω was created directly as an onomatopoeic form, and it might even be the noun which was back-formed from the verb. The relative dates of attestation can tell us nothing, but it is worth noting that we also find a noun βηχός with an unaspirated velar (see Schulze 1966:703), which could suggest that βήξ and βηχός were created from the ambiguous verb βήσσω. In any event, it does not seem terribly likely that this goes back to a *-ye/o- verb, not least because, as we can observe by looking at the corpus of forms in the next chapter, there are practically no examples which could be construed as onomatopoeic verbs among the *-ye/o- verbs which can be shown to be old. There is certainly no comparative evidence that might suggest that the root is inherited from Indo-European.

A parallel formation can be found in βρήσσειν· τὸ μετὰ βηχὸς ἀναπτύειν. ἔνιοι ταῦτα χωρὶς τοῦ ρ γράφουσι ‘to spit up by coughing, sometimes written without the ρ’ (Gal. Lex. Hipp.) and Hsch. βρήσσει· βήσσει. It looks as if this verb is based on βήσσω, and we cannot take its evidence very seriously.

6.5.3. A Suffix -ῦσσε/o-

It might seem possible that there is a long *ū*-vowel in ἀμαρύσσω ‘sparkle, twinkle, glance (of the eye)’, cf. ἀμαρῦγή ‘twinkling’ (Hes., *h.Merc.*, etc., with [y̆] in Attic and [ū] in Epic).

Leaving aside the fact that the stem vowel length is variable, it does not seem likely that this verb was formed with the *-ye/o- suffix. The general patterns of Greek denominative formation would not lead us to expect the verbal suffix *-ye/o- to replace the nominal suffix -η, but rather to be added to it yielding a verb in -άω. Also the voice of the velar in ἀμαρῦγή does not match that presupposed by ἀμαρύσσω. If ἀμαρύσσω is, in some way, connected with μαρμαίρω ‘gleam, sparkle, flash’ (e.g. Il.12.195), then we would have to posit a suffix -ύσσω; cf. denominative Attic πλανύττω ‘wander about’ beside πλάνος, -ᾶ, -ον ‘leading astray, deceiving, wandering’ (e.g. S.OC 1114); μορμύσσομαι ‘scare, frighten; fear, be afraid of’ in Call.Dian.70 beside Μορμώ, gen. -όος ‘a she-monster’ (e.g. Ar.Ach.582); or θωύσσω ‘bark, bay, buzz, cry aloud; call on’ beside θώς, gen. θώος (m.), which probably denotes a ‘jackal’ (Il.11.474), etc.⁶⁹

⁶⁹ Further examples of the suffix -ῦσσε/o- include αἰθύσσω ‘set in rapid motion; move rapidly’ (Pi.), λαφύσσω ‘swallow, gulp down’ (Hom.), μορμολύσσομαι ‘scare, frighten; fear, be afraid of’, δωρύττομαι ‘to present something’ (Theoc.), and ταρμύσσω ‘startle’ (Lyc.).

6.5.4. Forms with the Suffix -υζε/ο-

We find a number of verbs with a suffix -υζε/ο-, and in some cases there is some evidence for a long **ū* vowel in related formations. This suffix probably arose through the resegmentation of forms in which a sequence -υζε/ο- resulted from regular sound change, such as ἀτύζομαι. One example is:

ὄλολύζω ‘cry with a loud voice’ (Hom.), aor. ὄλόλυξα (Hom.).

The derived verbal noun ὄλολῦγῆ ‘a loud cry’ (Hom.) suggests a long *ū*-vowel, so ὄλολύζω could imply a counterexample to Sievers’ Law **ololūg-ye/o-*. But if we may compare Lat. *ululāre*, *ulula*, Ved. *ululí-*, *ulūka-*, Lith. *ulula*, *ulūlótī*, and *uloti*,⁷⁰ with a Greek dissimilation **ululuzō* > ὄλολύζω, then the stem is **ulul-* not **ululug-*. It is better to suppose a suffix -υζω.

A second example is:

τρύζω ‘make a low murmuring sound, mutter, (of liquids) squirt out with a noise’ (intr.) (Hom. etc.).

Comparisons have been drawn with τρυγών, -όνος (f.) ‘turtle dove’ (e.g. Ar.Av.302), which would suggest a verb **trūg-yō*—a counterexample to Sievers’ Law. However, Frisk (1973:936) and Chantraine (1999:1139–40) argue that we should consider this a *Schallwort* with the suffix -υζω, comparing γρύζω ‘mutter’ and ἰύζω.⁷¹ In support of this view, we should also compare τρίζω ‘utter a shrill cry, make a high-pitched noise’ (used of birds, the squeak of axles etc., e.g. Od.24.5; used of the noise made by ghosts in Od.23.101). Compare also τρυλ(λ)ίζω ‘gurgle’ (e.g. of the bowels in Hp.Int.6).

6.5.5. Suffixes with -πτε/ο-

We find a number of forms with the resegmented suffixes -πτε/ο- and perhaps -μπτε/ο-:

χρέμπτομαι ‘clear one’s throat, spit, cough’ (e.g. E.Cyc.626);

γνάμπτω ‘bend something’ (tr.) (Hom.), cf. γναμπτός, -ή, -όν ‘curved, bent’ (Hom.);

χρίμπτω ‘bring near; approach’ (tr./intr.) (Hom., A., E., etc.).

Apparently χρέμπτομαι derives from a root **g^hrem-*, with the same ultimate origin as χρεμετίζω ‘neigh, whinney’; cf. the aor. 3rd pl. form χρέμισαν (Hes.Sc.348), χρόμος, χρόμη ‘neighing of horses’ (Hsch.), χρόμαδος ‘crashing sound’ (Il.23.688), Latv. *gremju*, *gremt* ‘rumble’, Russ. *gremljú*, *gremét*, and Av. *gremantqm*. The -πτ- sequence does not seem to belong to any other stems associated with this word. If we were to reconstruct a **-ye/o-* present stem **k^hrem-p-yomai* to explain this verb, then we would have reconstructed a counterexample to Sievers’ Law, under any analysis. However, such a reconstruction

⁷⁰ See Pokorny (1959:306).

⁷¹ See also Tichy (1983:145–6).

does not help to explain *χρέμπτομαι*, since the stem-final **-p-* is obscure. Rather we may detect the influence of the almost synonymous verb *πτύω* ‘spit out, spit’ (Il.23.697).⁷²

A different process may be detected in *γνάμπτω*. The shape of this root is rather mutable. Sometimes we find the initial cluster devoiced; in codices we frequently find *κνάμπτω*. The word-initial cluster is found simplified in *γαμψός*, *-ή*, *-όν* ‘curved, crooked’ (e.g. *Hp.Nat.Puer*.31, *Ar.Nu*.337). Sometimes the word-internal nasal is lacking, and we find the Hesychian glosses *γνάπτει*· *κάμπτει* and *γναπτᾶς*· *ἔλικας*· *τὰ καμφθέντα ψελλία*; cf. *γνα(π)ταί*· *ἄκται* ‘curving beach’ (Hsch.).

Maurice (1987:201–3) argues that *γνάμπτω* represents the outcome of various ‘ressources expressives’ of Greek: nasal infixation and voicing of the initial cluster. The conclusion is that *γνάμπτω* is related etymologically to *κνήμη* (Dor. *κνᾶμη*) ‘the part between the knee and ankle, leg, shank’ (e.g. Il.4.147). In turn, *κνήμη* seems to be cognate with OIr. *cnāim* ‘bone’ and OE *hamm*. Maurice ascribes the word-initial voiced cluster to ‘sonorisation expressive’⁷³ and the final *-μπτ-* sequence to the influence of the almost synonymous verb *κάμπτω* ‘bend, curve, turn’ (e.g. *A.Pr*.32), which is based on an inherited root; cf. Lith. *kaĩmp-as* ‘corner’, *kũmpas* ‘curved’, and possibly also cf. Lat. *campus* ‘field’.

If the infixed nasal is analogical, then we cannot take *γνάμπτω* seriously as a counterexample to Sievers’ Law. However, *κάμπτω* itself would constitute a potential objection.⁷⁴

Beekes (2010:260 s.v. *γαμψός*) is sceptical of the idea of a contamination between *γνάμπτω* and *κάμπτω*, and proposes that all these forms are related but have a substrate origin (see also Beekes 2010:279 and 632–3). Given the level of variation in the stem, this idea actually seems rather likely.

If *χρίμπτω* went back to **k^hrimp-yō*, then it would be an exception to Sievers’ Law. But we have no firm basis for such a reconstruction. We may be able to connect *χρίμπτω* with *χραύω* ‘scrape, graze, wound slightly’ (e.g. *Hdt*.6.75, present stem implied by the imperfect) or *χρίω* ‘touch a surface, graze, rub, coat’ (e.g. *Od*.4.252). The root-internal nasal and *-πτ-* sequence could owe their origin to *γνάμπτω* ‘bend something’, *σρίμπτομαι* ‘press forward’, in which case an analogical explanation would be required.

Kölligan *apud* Beekes (2010:1650) suggests that this might be a **-ye/o-* present secondarily built from a nasal present **g^hri-m-b^h* from the root **g^hreyb^h* ‘reach for, take’, which otherwise only occurs in Germanic and Baltic, e.g. Goth. *greipan*, Lith. *griėbti* (see LIV² 203). This seems possible, but the relevance to the validity of Sievers’ Law would be limited, because the chronology of any such developments would be completely uncertain. Not even the nasal infixed starting point can be reconstructed for Indo-European. The assumption would have to be that the formation was comparatively late.

⁷² If *χρέμψ*, a kind of fish in Arist., is related, then it probably represents a back-formation, as would *ἀπόχρεμψις* (*Hp.Aph.*).

⁷³ We may compare the behaviour of *κνάπτω* ‘card wool, tear, rip, torture’ beside *γνάπτω*, and *γνάφαλλον* ‘wool’ beside *κνέφαλλον* ‘wool torn off in carding’.

⁷⁴ I shall argue on semantic grounds that *κάμπτω* is unlikely to be an ancient **-ye/o-* verb (see §7.2.2.4).

The present stem σκίμπτομαι ‘throw, press forward, fall down, hold oneself up’ is not attested until Callimachus, and it may have been analogically formed on the basis of the Homeric aorist ἐνι-σκήψαι. It is by no means certain that there ever was a *-ye/o- verb as such. Beekes (2010:1352) is sympathetic to the view that this was formed by crossing σκήπτω, -ομαι ‘prop something, allow to fall, hurl upon, fall, lean on a staff’ and χρίμπτω ‘come near, strike’. If this connection is right, then the diverse range of meanings for σκίμπτομαι might also be explained.

Of course, not all secondary formations involving -πτ- make heavy sequences. It seems that ἀμαλάπτω ‘soften’ (S.) is denominative and built from ἀμαλός ‘soft’, but clearly the *-ye/o- suffix is not involved.

Beekes (2010:734) supposes that κολάπτω ‘carve; peck, strike’ is a denominative from κόλαφος ‘a blow’ (Epich.), which itself has no etymology, in which case we would expect to reconstruct *kolap^h-ye/o-. However, it probably makes more sense to follow Frisk (1973:896–7) and Chantraine (1999:554–5 s.v. κολάπτω and κόλαφος) in supposing that the noun is a back-formation from the verb, and that the verb itself is based on the root *kelH₂- ‘hit’ (cf. Lith. *kálù*, *kalti*, Lat. *per-cellō*, etc.; see LIV² 350). The stem in -πτω could be analogical on verbs such as σκάπτω ‘dig’, κόπτω ‘strike, chop’, or one could think of a suffix -πτε/o-.

The origins of καλύπτω ‘cover, hide’ (Hom. etc.) are uncertain. The root may have Indo-European provenance; cf. OIr. *celim*, Lat. *celo (in *occulo* < *ob-celō), OHG *helan* ‘hold back, hide’ from *kel-e/o-. But the additional suffixation in Greek is obscure. We find two seemingly related nouns which imply different labial stops in the stem: καλυφή ‘submerged land’, περικαλυφή ‘envelopment’ (Pl.) vs καλύβη ‘hut, cabin’ (Hdt.). Beekes (2010:628–9) regards this consonant variation and the differences in vocalism between καλύβη and its variant κολυβός· ἔπαυλις ‘farmstead’ (Hsch.) as evidence for the Pre-Greek origin of this noun.

If we assume that -υφ- or -υβ- was somehow added to καλύπτω secondarily, then we might suspect the influence of κρύπτω ‘conceal, hide’ (Hom. etc.), which also exhibits variation in the root-final consonant; cf. fut. κρυβήσομαι (E. etc.) vs. κρυφῇ (Pi. etc.), and for which no Indo-European etymology has been established (see Beekes 2010:786–7).

6.6. ETYMOLOGICALLY OBSCURE EXAMPLES

The etymology of Hom. τιθαβώσσω ‘store up honey, store up; supply with food’ is obscure. Only the present stem is attested. Possibly there was a reduplication. We cannot be certain that the suffix *-ye/o- was involved at all. We could have the suffix -σσε/o- or -ωσσε/o-, or even a substrate borrowing whose original phonological structure was such that it was accommodated into a widespread Greek class: the verbs terminating in a sequence -σσω.

There is no certain etymology for Hom. κνώσσω ‘slumber’. Only the present stem is attested. Conceivably it could fit into the broader pattern of verbs in -ωσσε/o- denoting physical states, cf. ὑπν-ώσσω ‘be sleepy, drowsy; sleep’, ὄνειρ-ώσσω ‘dream’. Alternatively, the prior existence of κνώσσω itself could be implicated in the creation of ὑπνώσσω and ὄνειρώσσω. In etymological terms,

κνώσσω is isolated inside and outside Greek. Consequently we can know nothing of its morphological structure. There cannot be any certainty that the suffix *-ye/o- is involved, though it is possible. It is equally possible that the suffix -ωσσε/o- was involved. It is even conceivable that the stem κνώσσω- was borrowed as such by Greek or results from the adaptation of a loanword to existing Greek morphological patterns.

We have no etymology for σκώπτω 'jest, mock' (*h.Hom.*, *Ar.*, etc.) beyond the fact that it appears to be built from an invariant root σκωπ-; cf. σκῶμμα 'mockery, jest' etc. It could constitute an exception to Sievers' Law if it went back to *skōp^(h)-ye/o-, but there is no guarantee of such an origin: we could equally well imagine a resegmented suffix -τε/o-, because we have no notion of when this verb might have been formed, owing to the lack of any etymology and the fact that the root belongs exclusively to Greek. We cannot realistically make any use of this in our enquiry.

There is no etymology for κλώσσω 'cackle, clack' (*Suid.*); cf. κλώζω 'id.' (see §6.5.2) It is onomatopoeic and it seems unlikely that the suffix *-ye/o- is involved.

The Homeric verb ἐγρήσσω 'keep watch, be awake' seems to be related to ἐγείρω 'awaken, arouse' (e.g. *Il.*5.413), but the nature of this relationship is not at all clear. The cluster -γρ- could have arisen in the zero-grade form of the root; cf. the aorist middle ἔγρετο. To a stem ἐγρ- a putative suffix -ησσω could have been added. Such a suffix could have arisen through the resegmentation of πτήσσω beside cognate πτώσσω (see Chantraine 1999:310). However, there are no parallels for such a suffix and this explanation ignores a possible model which is much closer at hand. It seems much more likely that the long vowel in ἐγρήσσω owes its origin in some fashion to the reduplicated perfect form ἐγρήγορα (e.g. *Ar.Lys.*306).⁷⁵

There is a clear parallel between this perfect form and the Vedic perfect *jāgāra* from the root *gr-* 'wake' (cf. pres. *jārate*). The Greek pattern of reduplication with lengthening in the perfect ἐγρήγορα and the prothetic vowel in the present ἐγείρω (etc.) may provide evidence for a root-initial laryngeal (see Beekes 1969:113–25 and *LIV*² 245 s.v. **H₁ger-*). We might suppose an original perfect **egēgora* < **H₁ge-H₁gor-* assuming reduplication of the initial cluster **H₁g-*. The sequence -γρ- in the attested form ἐγρήγορα could have arisen under the influence of the aorist middle ἔγρετο.⁷⁶

A historical relationship between ἐγρήσσω and ἐγρήγορα would not be surprising. We know that the perfect stem had a present meaning and was used in the derivation of other present stem forms such as ἐγρηγορέω in *X.Cyn.*5.11 etc. However, it is not clear how ἐγρήγορα could have been resegmented in such a way that ἐγρήσσω could be derived from it. Even if a stem ἐγρηγ- could have been abstracted, it seems clear that the suffix *-ye/o- could not have been implicated. The only velar in this stem is voiced, and it is difficult to see how the double -σσ- in

⁷⁵ The perfect is found already in Homer, but it is attested with a -θ-, e.g. ἐγρηγόρθῃσι (e.g. *Od.*10.419). This form with -θ- seems to be unique to Homer. Chantraine (1948:429) explained this as a metrical convenience which allows such forms to fit into hexameter.

⁷⁶ This aorist middle form is interpreted as if it were passive with the meaning 'wake up' (intr.). The perfect also had an intransitive sense 'wake up, be awake' rather than 'awaken someone' (contrast ἐγείρω). This semantic congruence between the perfect and the aorist middle could have motivated formal influence.

ἐγρήσσω could have arisen via palatalization. Conceivably, a stem ἐγρη- could have been abstracted from the perfect and the well-attested suffix -σσ- added. But this is all very uncertain.

There are various other forms with unclear etymology, and unclear segmentation, which do not constitute potential counterexamples to Sievers' Law, but nonetheless deserve mention because they must be excluded as possible examples of *-ye/o- verbs.

It is difficult to know whether Hom. νάσσω 'caulk (ships), stuff up, bung up' is based on a dental- or a velar-final root. A root-final dental may be inferred from the verbal adjective ναστός 'close-pressed' (Hp.Gland.16 etc.) perhaps < *nat-tos. On the other hand, the Homeric aorist ἐνάξε and the alternative verbal adjective ναστός (Plu.CG 7) imply a root-final velar. In either case, the origin of this form is obscure.

There have been attempts to link Hom. νύσσω 'prick, stab, pierce' with forms such as OCS *nukati*, *njukati* 'encourage' and MLG *entnucken* 'jerk the head'. But these may be more closely connected with νεύω (cf. Lat. *nuo*) and it seems difficult to reconcile the semantics.⁷⁷

There is no certain etymology for σκαρδαύσσω 'blink, wink' (E.), and there does not seem to be any morphologically simpler form from which it could be derived.

The lack of any clear etymology for ποιφύσσω 'snort, hiss' (Nic. etc.) makes it difficult to use as evidence.

It seems unlikely that ξάινω 'card/comb wool' (Hom.) contains an -αινω suffix, since that would leave a rather peculiar root *ks- (at any rate peculiar from a later Greek point of view), and a *-ye/o- suffix seems a little more likely. But there are no external comparisons to confirm a root shape *ksn- and no formations within Greek that could not easily have been secondarily formed from the verbal stem itself. In short, an example such as this cannot be counted as sure support for a *-ye/o- verb, because we do not know the segmentation. Similar arguments may be made for excluding examples such as χράινω 'stain' (B., trag., etc.) whose etymology and segmentation are simply unknown.

There is no sure evidence that χάζομαι 'retreat' (Hom. etc.) had a *-ye/o- suffix, because we do not find evidence for the shape of the root that can be considered remotely independent. The aorist ἐχασ(σ)άμην suggests a root *k^had-, but, as Beekes (2010:1605) points out, the present may be analogical on the aorist, and the gemination in the aorist and future could be secondary. At any rate, there is no convincing Indo-European etymology for the root.

The origin of βράσσω 'shake violently, throw up (of the sea); winnow grain' (Hp., Sapph., Ar., etc.) is also pretty unclear. The aorist ἔβρασσα suggests a dental stem. At a late stage we find a different present stem, βράζω (Hld.). It has been thought that there might be a connection with βράζω 'boil, froth up' (Call.Hist.3), which might be cognate with Lith. *murdýnas*, *mürdau*, *mürdyti*, Latv. *murdēt* (see Beekes 2010:235–6). But the meaning is not so close as to make this terribly convincing.⁷⁸

⁷⁷ The 2 aor. ἐνύγην is late and potentially analogical (e.g. Gal.10.401).

⁷⁸ There is also a form with a different and unexplained vocalism ἐκβρήσσω; however, the form is not found until Galen and in grammarians. It seems unlikely that this long vowel represents anything directly inherited.

6.7. SOME PHONOLOGICAL ANOMALIES

In addition to morphologically segmentable secondary suffixes, we find a considerable number of other formations which must post-date the loss of an independent segment **y*. These closely resemble inherited *-*ye/o*- verbs, but on phonological grounds we can securely identify them either as later analogical formations or simply as different formations.

These examples are not readily segmentable in such a way that we could identify a series of secondary suffixes (as we can in cases like ἄφύσσω ‘draw (liquids)’ beside -αφύω). We can only detect the analogical nature of these formations through diachronic analysis.

6.7.1. Problems with *s*-stems

We appear to find a denominative formation beside the *s*-stem adjective ἄηθης, -ες ‘unwonted, strange’ (e.g. *A.Supp.*567) or ‘unused to a thing’ (with gen., e.g. *Th.*4.34):

ἀηθέσσω ‘be unaccustomed’ (intr.) at *Il.*10.493.

In phonological terms this cannot be a *-*ye/o*- verb. We would expect **aēthēs-yō* to result in **aēthēio* or **aēthēo*; cf. Hom. τελέω and τελείω < **teles-yō* (see Lejeune 1972:132–3). This verb must have been formed analogically, but a formal model is difficult to find. The following possibility only suffices if we ignore the inevitable difference in the position of the accent:

ἰμάς : ἰμάσσω⁷⁹ :: ἄηθης : X,
where X = ἀηθέσσω.

In similar fashion, beside the verb νέομαι ‘come, go’, which is built from an inherited root **nes*-,⁸⁰ we find a verb incorporating a sequence -σσ-:

Hom. νίσσομαι ‘go, come’ (intr.) or νῖσομαι (in codd. it is frequently spelled νεισ- or νεισσ-).

This verb has not received any satisfactory explanation. Just as we argued for ἀηθέσσω, we would not expect a sequence *-*sy*- to yield -σσ- in Greek, and so it is reasonably clear that νίσσομαι cannot continue a form such as **nis-yomai*. Instead, one proposal traces the [i] vowel to an anaptyctic vowel in **n^ss-o*- (see e.g. Lejeune 1972:208).⁸¹

We find a reduplicated formation in Skt *nimsate*. We cannot assume a Greek formation of the μίμνω type, i.e. **ni-ns-omai*, because the phonological treatment of an ancient **-ns*- sequence in Greek speaks against such a formation. We should

⁷⁹ On the length of the [α] vowel in the verb, see Chapter 7, n. 2.

⁸⁰ Compare νόστος, Ved. *násate* ‘take as a companion’. The present νέομαι comes from **nes-omai*; cf. Goth. *ga-nisan*, *nasjan*, etc.

⁸¹ For further Indo-European comparisons, see Pokorny (1959:766–7) and *LIV*² (454–5).

have seen the loss of *-s- and lengthening of the preceding vowel, giving **nīnomai* in dialects other than Lesbian and Thessalian.⁸²

It is difficult to assume a form **ni-ns-ye/o-*. We have no direct parallels for the phonological development of a sequence *-*Vnsy-*, but in the light of the Greek developments for which we do have evidence, we would expect **nīnomai* or **nīsomai* to emerge (see Lejeune 1972:128–32). The latter form would be consistent with some of the evidence we have. It would constitute a counterexample to Sievers' Law.

Pokorny (1959:766–7) proposes an alternative possibility that the *s could have been preserved in an athematic formation such as **ni-ns-sai* or **ni-ns-tai*. If the *s after the nasal was preserved for long enough, then it could have undergone the treatment characteristic of later *-*ns-* sequences: loss of the nasal, preservation of *s, and lengthening of the preceding vowel. The result would be the attested form *νίσσομαι* (e.g. Il.23.76).⁸³

Under either of these latter analyses, we could perhaps understand the -σσ- spelling as a purely orthographical phenomenon, if this verb was assimilated into the large class of verbs with stems terminating in -σσε/o-. In view of the uncertainties, we cannot use *νίσσομαι* as evidence in any argument about the distribution of the suffix *-ye/o-.

Another verb with -σσ- presents a similar phonological problem:

πίσσω 'winnow grain; pound in a mortar' (tr.) (e.g. Hdt.2.92), aor. ἐπῖτσα (Hdt., Thphr.).

We have good reason for reconstructing a root **pis-*; cf. ἄ-πιστοτος, -ον 'not winnowed or husked' (Hp.), Ved. *piṣṭá-* 'crushed', and Lat. *pistus* 'squashed, flat'. We may also compare the Latin nominal forms *pīsō*, *pistor*, etc., and there is Germanic and Balto-Slavonic evidence for such a root (see Pokorny 1959:796 and LIV² 466–7).

The Greek form has a number of peculiarities. Firstly, it has word initial πτ- corresponding to inherited *p. This phenomenon is unexplained, though not unique; cf. πόλις 'city' beside πτόλις and πόλεμος 'war' beside πτόλεμος. In Vedic and Latin we find a nasal infix present for this root, i.e. Ved. *pināṣti* 'pound' and Lat. *pinso*. The Gk πίσσω can hardly reflect such a formation; in a putative inherited form **pinso*, we would expect the ancient sequence *-ns- to give *-n- with lengthening of the preceding vowel, i.e. **pīnō* (see Lejeune 1972:128).

Nor can we assume a redetermined form with a *-ye/o- suffix such as **pinsyō* (which would incidentally have been a counterexample to Sievers' Law), since we would probably have expected a form **ptīne/o-* or **ptīse/o-* to emerge (see Lejeune 1972:128–32). On the other hand, we would not expect a form **p(t)isyō* to yield πίσσω (see Lejeune 1972:132–3). It seems that this verb must have been analogically rebuilt. It is possible that the aorist ἐπῖτσα could have been pivotal, allowing the creation of a new present stem, perhaps replacing an inherited nasal present:

ἐπῖτσα(σ) : πλάσσω :: ἐπῖτσα : X,
where X = πίσσω.

⁸² See Lejeune (1972:128–32).

⁸³ For the sound change compare *πᾶσα* < **pansa* (see Lejeune 1972:129ff.).

6.7.2. A Grassmann's Law Problem

A problem of a different nature is raised in the next example:

ταράσσω 'agitate, trouble' (tr.) (e.g. Pi.; Att. -ττω e.g. Ar.), aor. ἐτάραξα (Hom.), perf. τετρήχει (Hom.) (τρᾶχ- outside Ion.).

There is no Indo-European etymology for this root, but a certain amount of progress can be made by using Greek evidence. It seems reasonable to draw a comparison with θράσσω 'trouble, disquiet' (e.g. Pi.I.7.39, Hp.Mul.170, E.Rh.863); cf. Att. θρᾶττον (e.g. Pl.Phd.86e) and aorist -ξα (e.g. A.Pr.628).⁸⁴ However, if this comparison is to be taken seriously, then we must explain the difference in the root-initial consonant.

We might suppose that ταράσσω represents the outcome of a Grassmann's Law dissimilation of aspirates and reconstruct a root $*d^h_r H_2 g^h$, which could be considered a heavy sequence in some versions of Sievers' Law. However, this reconstruction encounters a problem. The present stem ταράσσω must be analogical in nature, because in a form such as $*d^h_r H_2 g^h$ -ye/o- the second aspirate should have undergone de-aspiration, thus protecting the initial aspirate from the effects of Grassmann's Law, just as we see in θράσσω. We cannot suppose that the aorist provides the source of ταράσσω, since the *s*-aorist suffix should have had the same effect as the *-ye/o-* suffix in respect of Grassmann's Law, giving $*e$ -t^harak-sa. The other major possibility seems to be the influence of the noun ταραχή 'disorder, disturbance' (e.g. Hdt.3.126); see Beekes (1969:199). For further discussion of θράσσω, see §7.2.1.2.

6.7.3. A Violation of Rix's Law

Another possible violation of established phonological rules only emerges through external comparison:

ἄττομαι 'begin weaving' (Hermipp.) = διᾶζομαι (Nicopho).

If we may compare Albanian *end* 'begin the cloth' and Ved. *átka-*, then we might follow LIV² (269) in reconstructing a root $*H_2 ent$ - and, for the Albanian and Greek evidence, a formation $*H_2 nt$ -ye/o- (cf. Klingenschmitt 1982:113 n. 8). However, according to Rix's Law,⁸⁵ we would expect a Greek form $*H_2 nt$ -ye/o- > $*ant$ -ye/o- > $*anse/o-$ > $*āse/o$.⁸⁶

We would have to assume that the two alternative present stem forms ἄττομαι and δι-ᾶζομαι are analogical creations. However, it is unclear what the basis for such analogical developments could be.

⁸⁴ Lamberterie (1990:414–17) also draws a comparison with θραχύς 'rough, jagged; savage'.

⁸⁵ See Mayrhofer (1986:129–31).

⁸⁶ We should note that the putative $*ant$ -ye/o- would constitute a violation of Sievers' Law in Greek terms—though of course if we think that Sievers' Law broke down before or in parallel with the operation of Rix's Law, then the counterexample would only be superficial. However, we are not entitled to reconstruct such a form on the basis of ἄττομαι, which under this analysis cannot itself represent anything ancient.

Beekes (2010:167) does not agree with the Albanian comparison but instead follows a suggestion of Van Beek and connects Hitt. *hatt-* ‘pierce, prick’, allowing the reconstruction of a root $*H_2et-$. Beekes suggests a full-grade $*-ye/o-$ verb, but, as we shall see, the evidence for this category outside a few well-defined phonological classes is questionable. A zero-grade formation would yield the same result. A full-grade root would have been light from the point of view of Sievers’ Law at every stage. On the weight of the zero grade roots of the shape $*HC-$, see §6.8.1.1.

6.7.4. Peculiar Laryngeal Developments

There are problems in understanding the developments lying behind Hom. $\lambda\acute{\alpha}\zeta\omicron\mu\alpha\iota$ ‘take hold of, grasp’. This is clearly from the same root as the one which gave rise to $\lambda\alpha\mu\beta\acute{\alpha}\nu\omega$. A root-internal laryngeal is implied by the long vowel in full-grade forms such as Att. aor. pass. $\lambda\eta\phi\theta\grave{\eta}\nu\alpha\iota$, fut. $\lambda\acute{\eta}\psi\omicron\mu\alpha\iota$, etc. A word-initial cluster $*sl-$ can be reconstructed on the basis of Att. $\Lambda\eta\beta\epsilon\tau\omicron\varsigma$, perf. $\epsilon\tilde{\iota}\lambda\eta\phi\alpha$, and Hom. $\epsilon\tilde{\iota}\lambda\lambda\alpha\beta\omicron\nu$. A root-final labiovelar is implied by the contrast between the forms with a root-final labial and Hom. $\lambda\acute{\alpha}\zeta\omicron\mu\alpha\iota$. LIV² (566), followed by Beekes (2010:822), reconstructs a root $*sleH_2g^w-$.

The only non-Greek form supporting such a root is old English *læccan*, *læccēan*, which presupposes Proto-Germanic $*lak-ye/o-$, itself a problematical reflex, since syllabic $*l$ should yield $*-ul-$; the $*a$ -vocalism would have to have arisen analogically from the full-grade stem.

In any case, regardless of whether we suppose a full-grade formation $*sleH_2g^w-ye/o-$, or zero-grade $*slH_2g^w-ye/o-$, the root would have constituted a heavy sequence under some analyses of Sievers’ Law. But $\lambda\acute{\alpha}\zeta\omicron\mu\alpha\iota$ is not the expected Greek reflex; we would expect a long vowel in either scenario. The short $\tilde{a}$ in the root is likely to have arisen analogically through secondary Greek ablaut. For this reason, it is hard to know how old $\lambda\acute{\alpha}\zeta\omicron\mu\alpha\iota$ itself might be.

6.7.5. Discrepancies in Root Consonantism

There are some more systematic apparent violations of established phonological developments in Greek. From the earliest stage we can clearly observe the analogical creation of new present-stem formations which are morphologically almost indistinguishable from genuine inherited $*-ye/o-$ verbs. We can be sure that analogy is involved because these formations have a present stem which is unexpected, given the nature of their root- or stem-final consonant.

New present stems terminating in a sequence $-\sigma\epsilon/o-$ or $-\tau\tau\epsilon/o-$ arise from velar-final verbal or nominal stems. We can usually be sure $*-ye/o-$ was not implicated, because we have evidence for a consistent stem- or root-final voiced velar, which should have yielded a present verbal stem terminating in $-\zeta\epsilon/o-$, if the $*-ye/o-$ suffix really had been involved.

Let us begin with a particularly clear example:

Att. $\sigma\phi\acute{\alpha}\tau\tau\omega$ ‘slaughter, slay’ (tr.), e.g. in Cratinus (fifth century BCE) and Plato.

This Attic form should be compared with the much more widespread $\sigma\phi\acute{\alpha}\zeta\omega$ (e.g. Od.4.320) and Boeot. $\sigma\phi\acute{\alpha}\delta\delta\omega$. We find plenty of other evidence that the root-final

velar in this verb was voiced: the second aorist ἐσφάγγην (e.g. A.Eu.305), the nominal stem in σφαγγή 'slaughter' (e.g. A.Eu.187), σφάγιον 'victim' (e.g. E.Or.842), etc. It is generally accepted, therefore, that the Attic form represents an innovation.

It is not difficult to see why such a development may have taken place. The sigmatic aorist ἐσφάξα (e.g. Il.2.422) and the sigmatic future σφάξω (e.g. E.Heracl.493) are ambiguous as to the voice of the root-final velar. Therefore, we can devise an analogical proportion to explain the innovation in the Attic present stem:

φράξαι : φράξειν : φράττειν⁸⁷ :: σφάξαι : σφάξειν : X,
where X = σφάττειν.

Such a development where the sigmatic aorist is implicated in the rebuilding of the present stem is by no means an isolated phenomenon in Greek; indeed, it will become something of a recurring theme.

In the case of σφάττω the development of a new present is confined to the Attic dialect and so may be considered comparatively late. In other cases we may have to infer that a new analogical present arose prehistorically, without the involvement of the suffix *-ye/o-. Evidence for the expected development of a -ζε/o- present stem is usually completely lacking:

τάσσω 'array, appoint, place' (tr.) (A. etc.), aor. ἔταξα (Hes. etc.).

Leaving aside the -σσ-/-ττ- sequence in the present stem, we find plenty of other evidence unambiguously supporting the supposition of a voiced velar -g- in this root, e.g. τᾶγῇ 'line of battle' (Ar.Lys.105), τᾶγός 'commander, chief' (e.g. A.Pers.23, 480, A.Pr.96).⁸⁸ It seems that the present stem represents a development similar to that of σφάττω. However, this innovation is not confined only to one dialect; there is no evidence whatsoever for a form *tázō < *tag-yō. It seems plausible once again to assume an innovation based on the ambiguous sigmatic aorist or future forms. Either the putative inherited form *tázō was completely replaced, or it never existed. In the latter case, we would have to assume that τάσσω was either a fresh creation filling out the paradigm beside a previously isolated sigmatic aorist, or else that it replaced some other formation, perhaps a root present or simple thematic formation.

There are chronological implications in these data. If τάσσω and τάττω are both found, then this may imply either that different dialects developed in the same fashion independently, or else that the development took place at a stage after the loss of *y but before the dialectal differentiation of the palatal reflexes -σσ- and -ττ-.

We face a similar phenomenon in several other cases. We have the uniquely Thessalian form ἐνεφανίσσασθαι 'make known' (end of third century from Pelasgiotis) beside ἐνεφάνισθαι in the Koine parallel text. According to Heraclides of Miletus (fragment 26C in Eust., Van der Valk 1971-87:3.130.3-4), the dialect of

⁸⁷ This verb means 'fence in, fortify, defend'. Other equally plausible (and perhaps semantically closer) models would be νύξαι beside νύσσειν/νύττειν 'prick, stab, pierce' or ἀμύξαι beside ἀμύσσειν/ἀμύττειν 'tear, scratch'.

⁸⁸ The alternation in root vowel length is mysterious. Aristarchus and others read τᾶγοί in Il.23.160; alternatively we may read οἱ τ' ἄγοί (see Wackernagel 1916:222 and Chadwick 1992). For possible Indo-European comparisons, see LIV² (615); cf. Pokorny (1959:1055).

Tarentum in southern Italy exhibited σαλπίσσω for σαλπίζω ‘sound the trumpet’ (cf. σάλπιγξ) and λακτίσσω for λακτίζω ‘kick’. We find συρίττω ‘play the syrinx’ in Attic (e.g. Pl.*Th.*203b) beside συρίζω elsewhere (e.g. A.*Th.*463). We find an odd MS reading βλιμάττομες (Ar.*Lys.*1164), apparently representing the Megarian form of βλιμάδδομες (Colvin 1999:167). It is conceivable that this represents a genuine linguistic development.

Sometimes examples of this type appear to be counterexamples to Sievers’ Law, e.g.:

πλήσσω ‘strike, smite; set in motion’ (Hom.), Attic -πλήττω (Arist.), cf. aor. πλήρξα (Hom.), Dor. πλάξα (Pi.).

The final stop of this root is clearly a velar—this much is obvious from the form of the sigmatic aorist—but the voicing of that velar is not so clear. While the -σσ- of the present stem suggests a voiceless stop, a number of other forms point to a voiced velar, e.g. the reduplicated aorist ἐπέπληγον (Hom.) and πέπληγον (Hom.) or the action noun πλήγῃ/πλάγῃ etc. We may also find the same root in (ἐκ-)πλήγνυμι (Th.) and possibly in πλάζω ‘turn something aside’ (Hom.), though Beekes (2010:1201) doubts this last comparison. In fact the only form clearly pointing to a voiceless velar is the present stem.⁸⁹ Chantraine (1999:917) traced both the roots **plH₂k-* and **plH₂g-* back to Indo-European (followed by Beekes 2010:1210). He connected the form with a voiceless velar to Balto-Slavonic cognates, e.g. OCS *plačq* (*sę*) ‘lament’, Russ. *pláču*.⁹⁰ He traced the form with a voiced velar to Germanic and Italic cognates, e.g. Goth. *fai-flōkun* and OE *flōcan* ‘slap’; cf. Lat. *plango*.

But the idea that this Greek discrepancy in the root-final velar really represents an ancient feature is highly questionable. It seems difficult to believe that the **-ye/o-* present form alone preserved an isolated **plēk-* root where **plēg-* is found in every other formation where it is possible to tell what the voicing is. Even if it is possible to find Indo-European parallels both for the voiceless and voiced root-final stop, it seems odd that one and the same language should maintain both forms side by side. At the same time, to attempt to ground this phenomenon in Indo-European seems to miss an important emerging pattern in the Greek verbal system. We have seen a couple of examples (and we shall see several more) where a root with an original voiced velar developed a present stem with a sequence -σσ-. It seems better to try to explain these difficulties in Greek terms, rather than by attempting to find cross-linguistic parallels.

Therefore, we should explain πλήσσω and πλήττω as analogical developments probably built from the ambiguous sigmatic aorist. Since the voice of the stem-final velar is not respected, this formation is only likely to have arisen after palatalization and the loss of **γ*. Prior to this phonological change, the velar-final stem form would have been morphologically transparent; it would be difficult on

⁸⁹ The only other potential evidence is the form πλάξ, πλάχος ‘anything flat, broad, plain’. However, this form is difficult to understand as a direct reflex of anything ancient; if there is a laryngeal in the root, we expect a long vowel rather than short ᾱ. Cf. OHG *fluoh* < **plāki* (see Beekes 1969:200). A few other forms show this unexpected short vowel, e.g. -πλάγῃναι (E.), fut. πλάγῃσομαι (Att.). This seems likely to be an example of secondary ablaut.

⁹⁰ From proto-forms with a short *ā* from a laryngeal, we find Lith. *plakù, plakti*.

synchronic grounds to motivate the creation of a present stem **plāk-ye/o-* beside ἐπέπληγον etc. If **-ye/o-* was not involved, then πλήσσω cannot be considered a counterexample to Sievers' Law.

Homeric ῥήσσοντες is another difficult and etymologically disputed example. In Homer it is used once of dancers:

...ῥήσσοντες ἀμαρτῇ
μολπῇ τ' ἰυγμῷ τε ποσὶ σκαίροντες ἔποντο

'beating (the ground) together amid dance and uproar they followed, skipping with their feet' (Il.18.571–2, cf. *h.Ap.*516).

The precise meaning is difficult to establish from the contexts in which it is found. As a result, there are two competing etymologies: Risch (1974:284) connected this root with ῥήγνυμι 'break'⁹¹ < **wreH₁g-*; cf. Lith. *rėžiu* (*rėžti*), OCS *rěžq* (*rězati*),⁹² ῥήσσοντες being an alternative form of the present stem. If this is the case, then the present in *-σσ-* from a root ending in **-g-* is interesting.

Chantraine (1999:967–8), on the other hand, argued for a connection with Att. ῥάττω 'hit', the etymology of which is uncertain. It is, however, quite clear that if this Attic root is of Indo-European origin, if the vowel is long, and if laryngeals truly influence the quality of the so-called long sonant liquids and nasals, then the Attic forms must derive from a root conforming to the scheme **s/_wreH₂k^(h)-* (cf. the aor. ἔρραξα with a long [ᾱ]), a root shape quite distinct from that of ῥήγνυμι. Chantraine noted a Slavic parallel to explain the voiceless velar in Greek: he compared Russ. *raziti* 'hit', which may rest on a root **wrāg^h-*, which could also lie behind Att. ῥάττω.

In either case the exact meaning of the word is not made much more precise. The Homeric usage could be an early intransitive use of the ῥήγνυμι root meaning 'to burst forth', or these people could be beating time. We can say that whether or not ῥήσσοντες in Homer belongs with ῥήγνυμι, Hippocrates (*Int.*17.42) is able to use a medio-passive present participle form of ῥήσσω to denote a painful sensation in the flank which in semantic terms does seem to be closely allied with the root of ῥήγνυμι (see Chantraine 1999:971–2).

There are in addition a number of difficulties with the Indo-European etymology of Attic ῥάττω. The Slavic forms which Chantraine used to support **wrāg^h-* are sufficiently ambiguous that they may equally be cognate with Russ. *rezati* 'cut, kill' and OCS *rězati*, which in turn are cognate with Gk ῥήγνυμι, as indeed Chantraine admitted. We ought to prefer reconstruction within a language group over attempts at cross-linguistic comparison. Since all the Slavic forms may be related to the same root, it is perhaps better to assume that this is the case in the absence of any other reason to attribute the precursor of Att. ῥάττω to Indo-European.

So, once again, the voicing of the velar in the root seems to be uncertain. The present stem has the voiceless form, while other seemingly more isolated nominal and verbal formations show the voiced velar. If ῥήσσοντες is not connected with ῥήγνυμι but with Att. ῥάττω, then perhaps there is no problem in terms of the voicing of the velar. But equally we would have no idea of when this root was

⁹¹ Compare ῥηγνύω and the aor. ἔρρηξα (Hom., Pi., Ar.).

⁹² Cf. *LIV*² (698).

formed and what its etymology is. If it is connected with ῥήγνυμι, then we have to explain why a present in -σσ- could form from a root that clearly terminates in a voiced velar. The solution seems to be to abandon the idea that the suffix *-ye/o- is involved and accept an analogical solution: ῥήσσω could be built from ἔρρηξα, the sigmatic aorist of ῥήγνυμι. There is no need at all to suppose a displaced precursor *rēzō. If this present is analogical in nature and is unlikely to have involved the suffix *-ye/o-, then it cannot be used as a counterexample to Sievers' Law.

The form πρήσσω faces difficulties in relation to the voicing of the final stop in the root:

πράσσω 'pass through/over; fare; accomplish, manage' (intr./tr.), Ion. πρήσσω (e.g. Od.9.491), Att. -ττω, cf. Cret. πράδδω (*Leg.Gort.1.35*), aor. ἔπραξα, Ion. ἔπρηξα, perf. πέπραγα, Ion. πέπρηγα.

Once again the present stem suggests a root-final voiceless velar. Various other forms are neutral from the point of view of voicing, e.g. ἄπρακτος 'without profit, without success' or the sigmatic aorist and future forms. However, elsewhere there is evidence of a voiced root-final velar. We find the noun πρᾶγος, -εος (Pi.N.3.6, A.Th.861, etc.), the Cretan form πράδδω; cf. εὐπρᾶγέω 'do well, be well off' (e.g. Th.2.60) and κακοπρᾶγέω 'do badly, fail in an endeavour' (e.g. Th.4.55).

Beekes (1969:199–200) noted that πρήσσω seems to be analogical on the aorist. In turn, he speculates that the aorist ἔπραξα is built from an original present form *prāgō < *prH₂g-e/o-, beside which the perfect πέπραγα lay. As is becoming clear, the development of this verb seems to fit into a wider historical pattern. Once again, despite superficial appearances, πρήσσω cannot itself be a counterexample to Sievers' Law, though Cretan πράδδω might be.

Beekes (1969:199–200) linked πράσσω to the widespread root *per- in e.g. πέρᾱν 'across', περί 'around', and πείρω 'pierce through', with the added element *-H₂-, though more recently he has taken *per- and *perH₂- to be two separate roots (see Beekes 2010:1229–30). There are three Greek verbs involving the extended root *per-H₂- or *perH₂-: πέρνυμι, πέπρωμαι 'export for sale' (Il.22.45), πιπρᾶσκομαι with the same meaning (Lys.18.20), and of course πρήσσω. The idea inherent in the original root could have been that of reaching a goal. Indeed in epic usage πρήσσω is commonly used of completing a journey (e.g. ῥίμψα πρήσσοντε κέλευθον Il.14.282 = 23.501). There are no Indo-European cognates for perH₂-, or the root with the extra velar extension, and so it is unclear how old the root *pr-H₂g- might be, let alone πράδδω itself.

Some other cases are less clear-cut. The internal evidence does not always make for an easy decision:

πτύσσω 'fold, double up' (Hom.),⁹³ cf. aor. act. ἔπτυξα (very infrequent), aor. pass. ἐπτύξαμην (Ar.), future -ξω (ἄνα-, E.).

In this verb, the present stem suggests a root-final voiceless velar, as does the noun πτύξ, -υχός 'fold'. But the voicing of the velar in the 2nd aor. pass. ἐπτύγην (Hp.Int.48) seems to undermine this supposition. It is unclear whether we should

⁹³ In Attic, forms with -ττω are rare (e.g. Pl.Lg.858e). The reason for this is unclear. We could argue that it is an Ionicism (cf. Schwyzler 1953:319 n. 1). Alternatively, we could suppose that a sequence *τ...ττ- was avoided. This latter supposition is somewhat undermined by the existence of a verb πτίττω beside πτίσσω (see §6.7.1).

suppose that the aorist passive form or the present stem is an innovation. There is no secure etymology to help us.

There are further examples where we face a dilemma when weighing the internal and comparative evidence against one another:

μάσσω ‘knead, press into a mould’, Att. μάττω (S., Ar., etc.), aor. ἔμαξα (Pherecr., Hdt.), future μάξω (Od., Ar., etc.) (see Beekes 2010:910–11).

This appears to be a derivative of the same root as μᾶζα ‘barley cake’ (Hdt.1.200 etc.) and μαγίς, -ίδος (a feminine action noun, in e.g. Hp. and S.). The second aorist passive ἔμαγην also seems to suggest a voiced root-final velar. There are also good Indo-European cognates for a root **maǵ-* (or *meH₂ǵ-*, depending on our view of Indo-European **a*), e.g. OHG *mahhōn*, OSax. *makōn*, OCS *mažq* (*mazati*), (see Pokorny 1959:696, 698; cf. LIV² 421). This would seem to present a strong case that μάσσω is an innovation. However, there is an alternative analysis: we might choose to compare instead NHG *mengen*, Skt *macate* ‘grind’, which would allow us to reconstruct a root with a voiceless velar, IE **menk-/mṇk-*, which could explain μάσσω < **mṇk-yō* (see Pokorny 1959:730ff., LIV² 438, **menk-*).

We have seen before that it is a common trait that evidence of a voiceless velar is only found in the supposed **-ye/o-* present. It might be more economical to suppose that the *-σσ-* present represents an analogical innovation rather than a preservation, as we have argued in other cases.

A further example of this phenomenon may be shown by Hellenistic πήσσω, Att. πήττω derived from the root **peH₂ǵ-* of πήγνυμι ‘fix, stick, coagulate’ (cf. Lat. *pangō*). Rather than supposing a **-ye/o-* verb with a heavy sequence in the root, it is more likely that this is an analogical formation based on the superficially ambiguous sigmatic aorist ἐπηξα.⁹⁴

Similarly, the late σφύττω ‘strive eagerly’ (D. Chr.) is pretty clearly secondary beside σφύζω ‘beat violently’ (Hp., Pl., Arist., Thphr.). However, there is no etymology to confirm this.

The late φρύσσω stands beside φρύγω ‘roast, fry’ (Hdt., Ar., etc.), and it seems very likely that the same pattern of development should be supposed here, rather than having to assume an ancient **-ye/o-* verb with a heavy sequence in the root.

In a very few cases we seem to find similar voicing discrepancies associated with denominative formations, where it might be implausible to suppose a pre-existing sigmatic aorist formation as the basis for an explanation. We have a denominative λᾶτάσσω ‘throw the λᾶταγες’ (found on a vase of Euphronios; see Kretschmer 1894:87), based on λᾶτᾶξ, -ᾶγος (usually plural) ‘the drops of wine used in the game κότταβος’. Conceivably we should suppose that this form was built from the ambiguous nominative singular: χᾶραξ : χᾶράσσω⁹⁵ :: λᾶτᾶξ : X, where X = λᾶτάσσω. In any case, **-ye/o-* cannot be involved.

⁹⁴ The supposed voiceless root variant **peH₂k-* was thought to be found also in πάσσαλος ‘peg, pin’. But given the unexplained additional suffixation, it might be just as well to assume that πάσσαλος is a loanword. In light of the fact that the verbal evidence is comparatively late and falls into a clear and predicable Greek pattern of root allomorphy, it seems better to assume that πήσσω is secondary rather than that it preserves an archaism.

⁹⁵ The base of this **-ye/o-* denominative is χᾶραξ, -ᾶκος ‘pointed stake, vine prop, pale’ (Ar.Ach.986). The verb means ‘scratch, notch’.

Similarly, Hsch. θωμίσει· νύσσει, δεσμεύει ‘pierce, fetter’ shows a voicing discrepancy beside θῶμιγξ, -ιγγος ‘cord; bow string’ (Hdt. etc.), and it seems likely that the verb is analogical rather than involving the **-ye/o-* suffix, and so we should not take the implicit heavy sequence in the stem too seriously.

On the face of it, πατάσσω ‘beat, knock’ appears to be derived from πᾶτᾰγος ‘clatter, crash’ (e.g. of trees falling, Il.16.769; of arms clashing, Hdt.3.79), cf. πᾶτᾰγέω ‘clash, clatter’ denoting the noise associated with the collision of two bodies (e.g. Ar.Nu.378ff.). Once again, we find a mismatch between the voice of the velar implied by the present stem and that of other forms outside the verbal system. However, the ambiguous sigmatic aorist and future forms are only attested later (Ar.Lys.657, Thgn.1.199). Either the later attestation of these ambiguous forms is accidental, and the same analogical mechanism is at work here as we have seen in other examples, or some other analogical mechanism was responsible for the creation of the present stem, e.g. -πραγέω : πράσσω :: παταγέω : X, where X = πατάσσω.

In the context of these analogical formations in -σσω, it is appropriate to mention the difficult example σάσσω, Att. σάττω ‘pack, stuff’; cf. aor. ἔσαξα. The evidence of the present stem σάττω, which would suggest an underlying voiceless velar, is apparently contradicted by the Cretan verb συνεσάδδῃ (Leg.Gort.III.13) and by comparison with the possibly related noun σᾶγρή/σᾶγρη (f.) ‘baggage, knapsack’ (A.Ch.675).

Bechtel (1921–4:2.745) took the view that the present stem σάσσω was a secondary analogical formation. This would fit well with the patterns of formation which we have already seen, and could easily be explained on the basis of the ambiguous sigmatic aorist.

On the other hand, if we follow LIV² (655), we could compare OHG *-dūhen* and Lith. *tveñkti, tvenkiū* ‘block, dam up’ to reconstruct a form **twnk-ye/o-* from an Indo-European root **twenk-* (see also Pokorny 1959:1099–1100).⁹⁶ However, the Germanic evidence for a root-final voiceless velar is difficult to use; forms from the rest of Germanic speak for a root-final voiced velar in Germanic terms, e.g. OHG *dwingan* ‘compress, coerce’ and NHG *zwingen* ‘compress, coerce’ (see Seebold 1970:526–8). If the voiced velar is original, then it might be possible to derive the Germanic forms from a root with a final **-g^h*, for which there is a little comparative evidence; cf. Av. θβᾰzjaiti ‘be excited, be pressed’ (possibly < **tweng^h-sk-*). In such a case we might suppose that OHG *-dūhen* results from contamination by the synonymous root **trenk-* in Germanic and Baltic, e.g. Goth. *preihan*, OE. *ðrengan*, Lith. *trenkū* (*triñkti*), and cf. also MW *trenghit*, etc. (see LIV² 649) and Lloyd et al. (1998:843–4).⁹⁷

⁹⁶ If we were to follow the alternative etymology which connected σάττω instead with σηρός, Dor. σαρός ‘enclosure, pen’ < **twāk-*, then it would be difficult to maintain an Indo-European etymology for the root; if the long vowel in **twāk-* went back to a laryngeal, then we would expect the zero grade to be **tūk-* < **tuH₂k-* rather than **twak-* (see Beekes 2010:1322–3).

⁹⁷ The phonology of OHG *-dūhen* is sufficiently ambiguous that other possibilities have been entertained. Lloyd et al. (1998:843–4) mention the possibility of deriving it from a nasal infix present from an extended root **(s)tew-k^w* ‘push’, which could conceivably find cognates in Ved. *tuñjānti* ‘urge, press out, etc.’ from a root **(s)tew-g-* (see EWAia I 670, LIV² 602); Gk στύγω ‘hate, abhor’ < **stew-g-*; Ved. *tudāti* ‘force’ < **(s)tew-d-* (see EWAia I 671); and Lith. *tukšėti* ‘hit, force’ from a root **(s)tew-k-*. The supposition of a labiovelar in Germanic could help to explain the variant forms with root-final

It might be possible to retain an etymological connection between all this Germanic, Lithuanian, and Greek evidence, if we suppose that forms like OHG *dwingan* have generalized a Verner's Law variant with root-final $g < *k$. If we take the comparative evidence for root-final $*-k-$ seriously, then we would have to suppose that the Greek forms with $*-g-$ are secondary. Forms like $\sigma\acute{\alpha}\gamma\eta/\sigma\acute{\alpha}\gamma\eta$ could have been built on the basis of patterns established by verbs like $\tau\acute{\alpha}\sigma\sigma\omega$ beside $\tau\acute{\alpha}\gamma\eta$. The Cretan form $\sigma\upsilon\nu\epsilon\sigma\sigma\acute{\alpha}\delta\delta\eta$ would also have to be analogically created on this view. However, this scenario is rather difficult to accept, given that there are almost no other examples in Greek of a $-\zeta\epsilon/o-$ (or $-\delta\delta-$) verb being built analogically in this fashion before the medieval period.⁹⁸ There seems to have been an asymmetry in these analogical developments which favoured the production of $-\sigma\sigma\epsilon/o-$ verbs and not $-\zeta\epsilon/o-$ verbs. From this perspective, if analogical, Cretan $\sigma\upsilon\nu\epsilon\sigma\sigma\acute{\alpha}\delta\delta\eta$ would represent an almost unique example. The comparative data are rather confusing, and on internal grounds Bechtel's idea that $\sigma\acute{\alpha}\sigma\sigma\omega$ was an analogical formation has much greater plausibility.

6.7.6. Analogy in Labiovelar-final Roots

It is clear that a number of $*-ye/o-$ verbs with root-final labiovelars went on to develop secondary present stems in $-\pi\tau\omega$, e.g. $\nu\acute{\iota}\pi\tau\omega$ (Men., NT) beside the inherited $\nu\acute{\iota}\zeta\omega$ 'wash' $< *nig^w-ye/o-$ (cf. OIr. *-nig*, pass. *negar*, Skt *nenikté*, YAv. *naēnižaiti*, etc.) and $\pi\acute{\epsilon}\pi\tau\omega$ (Arist.) beside $\pi\acute{\epsilon}\sigma\sigma\omega$ 'ripen, cook' $< *pek^w-ye/o-$ (cf. Ved. *pácyate* etc.). Such secondary formations clearly developed analogically from the sigmatic aorist and future forms $\acute{\epsilon}\nu\iota\psi\alpha$, $\nu\acute{\iota}\psi\omega$ and $\acute{\epsilon}\pi\epsilon\psi\alpha$, $\pi\acute{\epsilon}\psi\omega$, etc. Obviously such an analogical development could only take place after the change of labiovelars to labials before a consonant in the sigmatic formations. Such comparatively late formations cannot help us to understand the early distribution of semivowels.

6.7.7. Further Labiovelar Problems

It might seem desirable to unite $\theta\alpha\lambda\acute{\upsilon}\sigma\sigma\omicron\mu\alpha\iota$ 'be burnt up' (Hsch.), the aor. $\theta\alpha\lambda\acute{\upsilon}\psi\alpha\iota$ 'heat, burn', and the adj. $\theta\alpha\lambda\upsilon\kappa\rho\acute{o}\varsigma$ 'warm, glowing' (Call. etc.), by supposing a stem-final labiovelar $*-k^w$. However, the preceding u -vowel should have delabialized any such labiovelar at an early stage and in all instances; so the labial articulation in the aorist is difficult to understand under this analysis. Beekes (2010:531–2) thinks that these forms together with $\theta\acute{\alpha}\lambda\pi\omega$ 'heat' can be linked by processes which operate in substrate words. We cannot use such evidence in our enquiry.

$*-w-$, such as MLG *dūwen* and NWFr. *dūwe*. However, the standard of evidence for this etymology is not very high, not least because the idea of an extended root of this kind removes the need to adduce much in the way of comparative evidence for the root-final stop.

⁹⁸ The late Cretan form $\delta\iota\alpha\phi\upsilon\lambda\alpha\delta\epsilon\nu$ (IC II V.17, l. 11, from Axos, c.201 BCE) is the only clear counterexample to this generalization, being a clear replacement for $\delta\iota\alpha\phi\upsilon\lambda\acute{\alpha}\sigma\sigma\omega$. This is unexpected, because Cretan is generally quite conservative in preserving verbs with their original root-final voicing, e.g. $\pi\rho\alpha\delta\delta\omega$ beside Koine $\pi\rho\acute{\alpha}\sigma\sigma\omega$. It may be that $\delta\iota\alpha\phi\upsilon\lambda\alpha\delta\epsilon\nu$ represents a late 'hyper-Cretanism' in the face of Koine influence.

6.8. PHONOLOGICALLY AMBIGUOUS EVIDENCE

Sometimes the contingencies of Greek historical phonology make it difficult to determine with certainty the weight of a sequence to which Sievers' Law could, in theory, have applied. Furthermore, phonological ambiguities sometimes make the reconstruction of a **-ye/o-* suffix merely possible, rather than certain.

Often the **-ye/o-* suffix is reconstructed on comparative grounds alone, without any language-internal phonological basis. In general, such reconstructions cannot bear much weight in any further argument about early Greek phonotactics. Indo-European languages frequently do not agree with respect to present stem formations built from a given root, and so if there are no phonological or morphological reasons for positing a **-ye/o-* verb for Greek itself, then such reconstructions will not prove a very reliable basis for making further inferences. Nevertheless, it is worth discussing the examples, to see what the potential implications of their evidence might be.

We will begin by looking in detail at problematic root configurations involving laryngeals, before considering ambiguous forms with root- or stem-final **s*.

6.8.1. Ambiguities in Roots with Laryngeals

We find a number of vowel-final verbal roots in Greek which go back to laryngeal-final roots in Indo-European terms. For some root shapes it is very difficult to know whether we should reconstruct a full-grade or a zero-grade root vocalism, and in some cases it is difficult to know whether we should reconstruct a **-ye/o-* suffix at all.

In other cases we find laryngeal-initial roots, where suffixation is not in doubt, but the potential weight of the sequence is difficult to determine, because zero-grade and full-grade formations are indistinguishable, and the original weight of the sequence might differ depending on the analysis. Even in cases where the weight of the sequence immediately preceding the suffix would be the same whether the root was full or zero grade, the question of root vocalism will still be of interest; an overall understanding of the ablaut properties of **-ye/o-* verbal formations will help us towards an account of the morphotactic and hence phonotactic restrictions on the suffix.

6.8.1.1. Roots with the Shape **HC-*

It is clear that ὄσσομαι 'see, look, presage, have foreboding' (Hom. etc.) goes back to a root with an initial laryngeal and a final voiceless labiovelar, on the basis of internal comparison with forms such as fut. ὄψομαι and perf. ὄπ-ωπα, and comparative evidence such as Ved. *īkṣate* < **H₃i-H₃k^w-se-* (see LIV² 297–8).

There is no comparative evidence suggesting that the **-ye/o-* suffix is reconstructible for this verb in Indo-European itself. But the example could still, in principle, have provided phonological and morphological testimony at some level, were it not for the difficulty in knowing whether ὄσσομαι goes back to a zero-grade formation **H₃k^w-ye/o-* or full-grade **H₃ek^w-ye/o-*, since the outcomes in

Greek would be the same. If the formation was zero grade, then we seem to have a word-initial consonant cluster followed by $*y$, and this example should feed into discussions about Lindeman's Law and the weight of obstruent clusters involving laryngeals at an early stage. If the root is full grade, then this example would form part of the evidence for a full-grade $*-ye/o-$ formation in Greek and the sequence before $*-ye/o-$ would be light. The ambiguity robs this example of independent probative value in such discussions.

A similar root shape may be reconstructible for ἄζομαι 'to be dried out' (Hom. etc.), if we may compare Hitt. *hāt-/hat-* 'to dry up, become parched' < $*H_2\delta d-$ / $*H_2d-$ (see Puhvel 1984–:3.247–8, and Kloekhorst 2008:329; this analysis is adopted by Beekes 2010:26). For the Greek form we might reconstruct $*H_2ed-ye/o-$ or $*H_2d-ye/o-$, and so it is unclear whether we have evidence for the treatment of a word-initial cluster involving a laryngeal, or a full-grade formation.⁹⁹

Difficulties of the same kind are presented by ὄζω 'smell, scent' (A., Ar., etc.) ὄσδω (Theoc., Xenoph.) < $*H_3(e)d-ye/o-$; cf. Lith. *uodžiu* 'smell', where the lengthened vocalism can be due to Winter's Law (see Beekes 2010:1051). The Baltic and Greek formations can be identical. However, we cannot know whether we have the outcome of a full-grade or a zero-grade root in Greek, $*H_3ed-ye/o-$ / $*H_3d-ye/o-$. The Baltic evidence does not oblige us to posit full-grade vocalism for Greek, since Indo-European languages often exhibit different present formations from the same root, and the formation could simply differ in each group.

The etymology of ἄπτω 'fasten, bind; kindle, set on fire' has generally remained pretty obscure, beyond the obvious internal connections with the action noun ἄφῆ 'lighting, kindling; touch' and denominative ἀφά 'touch'. But if Van Beek *apud* Beekes (2010:120) is right, then there might be a connection with Hitt. *happ-* 'join' and Lat. *aptus*, from a root $*h_2ep-$. The word-initial aspiration in Greek would have to be secondary after verbs such as ἔπω 'take care of', and the root-final $-\varphi$ in the derivative forms would have to be analogical. However, I have not understood why the cited models τὰφ- 'bury' (< $*d^hmb^h$) and σκαφ- (behind σκάπτω 'dig' etc.) should have been particularly influential. If this etymology turns out to be correct, then a $*-ye/o-$ verb built from a root $*H_2ep-$ would face the same problems of interpretation as one built from $*H_3ek^w$.

6.8.1.2. Roots Containing $*CH(e)C-$

In some cases we cannot know whether we have a full-grade or a zero-grade formation, where it is supposed that the full-grade vowel immediately follows a laryngeal. Such a root structure has been proposed to explain the origin of σφάλλω 'make fall, trip, ruin, mislead' (Hom. etc.); cf. aor. ἔσφηλα, σφαλερός 'slippery' etc. Usually we compare Ved. *skhálate* 'stumble, err', Arm. *sxalem*, *-im* 'id.', and

⁹⁹ An alternative etymology connects Latin *āreō* 'to dry', *āra* 'altar', Toch.AB *ās-* 'to dry out', Ved. *āśa-* 'ash', Hitt. *hāšš-* 'ashes; dust; soap', and OHG *essa* < $*āsyōn$. However, it is difficult to explain the variation in vowel length from language to language. To this end, Kloekhorst (2008:318–19) reconstructs a root $*H_2eH_1s-$ / $*H_2H_1s-$. But it is not at all clear that such a root would be expected to give $*ās-$ in Greek. Furthermore, the $-d-$ formation of the putative Proto-Greek form $*as-d-omai$ remains unexplained on this account.

this allows the reconstruction of a root $*(s)g^{wh}H_2el-$ (see EWAia II 751–2 and LIV² 543–4). If there was an old $*-ye/o-$ formation from this root, then we would not be able to tell the difference between a full-grade or a zero-grade root from such a configuration, i.e. $\sigma\kappa\acute{\alpha}\lambda\lambda\omega < *(s)g^{wh}H_2el-ye/o-$ or $*(s)g^{wh}H_2l-ye/o-$. In the first case, y would be preceded by a light sequence, and Sievers' Law would predict $*y$ rather than $*i$. In the second case, $*y$ would be preceded by a syllabic, which would also lead us to expect $*y$ rather than $*i$. An ambiguous example such as this is not useful in our enquiry.

6.8.1.3. Roots with the Shape $*CRH-$

Leaving aside, for one moment, questions surrounding the behaviour of $*HRHy$ sequences, we might reasonably expect a verb with the shape $*CRH-ye/o-$ to behave like other $*CRHC$ sequences and yield a root-final long vowel of a colour that matched the laryngeal in question, i.e. $*CRH_x-ye/o- > *CR\tilde{V}_x-ye/o- > CR\tilde{V}_x-e/o-$. Although the $*-ye/o-$ suffix would not leave a direct reflex, the long vowel in the root would provide an indication for a verbal suffix with an initial consonant which was lost at an early stage; $*-ye/o-$ is a very reasonable reconstruction in such cases. We find a few potential examples of such a development:

$\rho\acute{\omega}\sigma\mu\alpha\iota$ 'move violently, rush' $< *srH_3-ye/o-$ from the root $*serH_3-$; cf. Hitt. $\check{s}arriye/a-$ 'divide up, cross (a threshold), transgress (borders)',¹⁰⁰

$\tau\rho\acute{\omega}\omega$ 'hurt someone' (Hom.) $< *trH_3-ye/o-$; cf. $\tau\iota\tau\rho\acute{\omega}\sigma\chi\omega$ 'wound, damage' and perhaps cf. cuneiform Luwian $tatarh-$ 'break?'.¹⁰¹

These seem to be good examples of light Indo-European sequences which were completely transformed in the history of Greek. Insofar as the reconstruction of these roots is securely supported, and insofar as we are confident that the full-grade forms of these roots would have been of the shape $*CeRH-$ rather than $*CReH-$, then the Greek forms unambiguously represent the outcome of zero-grade roots. However, where the morphological possibility existed for the full-grade vowel to occur after the resonant and before the laryngeal, i.e. in roots where we have evidence that the full-grade form was regularly $*CReH-$ rather than $*CeRH-$, or in roots where we do not know where the full-grade vowel lay, a Greek outcome $CR\tilde{V}_x-$ is ambiguous between a preform $*CReH_x-ye/o-$ and $*CRH_x-ye/o-$. So the following verbs could potentially represent the outcome of full-grade or zero-grade $*-ye/o-$ verbs:

$\delta\rho\acute{\alpha}\omega$ 'do, make' perhaps $< *drH_2-ye/o-$ or $*dreH_2-ye/o-$;¹⁰²

$\pi\lambda\acute{\omega}\omega < *plH_3-ye/o-$ or $*pleH_3-ye/o-$, cf. OE $fl\acute{o}wan$.

¹⁰⁰ See Kimball (1999:414), though the etymology is somewhat disputed. For the Hittite root $\check{s}arr-/šarr-$, Kloekhorst (2008:727–9) reconstructs $*serH_1-$ on internal grounds; instead he compares Greek $\rho\acute{\omega}\sigma\mu\alpha\iota$ with $\check{s}arhiye/a-$ 'to attack (?)', to press on (?), which can continue a root with $*H_3$ ($*srH_3-ye/o-$). However, the meaning of this Hittite word is less than certain.

¹⁰¹ For the root, see LIV² (634), though Beekes (2010:1488–9) regards it as unfounded. Kloekhorst (2008:835–9 esp. 839) upholds the root $*terH_3-$, and resists collapsing the Luwian form together with Hitt. $tarhu-$ 'prevail, conquer' $< *terH_2-u-$.

¹⁰² The root may be exclusive to Greek, if Lith. $daryti$ 'do, make' belongs with $*d^her-$ (see LIV² 127 s.v. ?2. $*dreH_2-$ and see Beekes 2010:352–3).

Other much less certain examples include:

Att. $\kappa\tilde{\nu}\tilde{\omega}$ ‘scratch’, 3rd sg. $\kappa\tilde{\nu}\tilde{\eta}$, Hom. impf. $\kappa\tilde{\nu}\tilde{\eta}$ < $*kn\bar{e}-e/o-$; < $*kn\bar{a}-e/o-$ < $*k\eta H_2-ye/o-$ or $*kneH_2-ye/o-$; cf. OHG *nuoen*, Lith. *knóju*, *knóti* (see LIV² 365);¹⁰³

$\sigma\tilde{\mu}\tilde{\omega}$, $\sigma\tilde{\mu}\tilde{\eta}$ ‘wipe down’ conceivably from $*smH_1-ye/o-$ or $*smeH_1-ye/o-$; cf. $\sigma\tilde{\mu}\tilde{\eta}\mu\alpha$ < $*smeH_1-m\eta$ ‘soap, unguent’ and perhaps Lat. *macula* ‘stain’ if from < $*(s)matlo-$ < $*smH_1-tlo-$ (see LIV² 568 s.v. $?*smeH_1-$ and de Vaan 2008:357–8).¹⁰⁴

From the point of view of Sievers’ Law, the full-grade or zero-grade formations would constitute light sequences at an early stage, and later would produce vowel-final stems. At any stage in their development Sievers’ Law would predict a $*-ye/o-$ rather than $*-iye/o-$ suffix, and this is what we are likely to have here. However, examples with this root shape cannot provide independent evidence for the prevalence or distribution of full-grade $*-ye/o-$ formations in early Greek or in Indo-European.¹⁰⁵

The idea that the outcome of $*CRHy$ and $*CReHy$ sequences would have fallen together in early Greek is at odds with Peters’ (1980:80–1 n. 38) theory that $*CRHy$ > Proto-Greek $*C\bar{a}Ry$ with laryngeal deletion. In support of this notion, Peters cited $\acute{\alpha}\sigma\pi\alpha\acute{\iota}\rho\omega$ ‘pant, struggle convulsively, flounder’, which he derived from $*sprH-ye/o-$, and $\kappa\alpha\iota\nu\acute{o}\varsigma$ ‘new, fresh’, which he derived from $*k\eta H-ye/o-$.¹⁰⁶ If correct, then this would mean that examples like $\delta\rho\acute{\alpha}\omega$, $\pi\lambda\acute{\omega}\omega$, $\kappa\tilde{\nu}\tilde{\omega}$, and $\sigma\tilde{\mu}\tilde{\omega}$ would unambiguously point to full-grade formations $*dreH_2-ye/o-$, $*pleH_3-ye/o-$, $*kneH_2-ye/o-$, and $*smeH_1-ye/o-$, and in turn this would have important consequences for our understanding of the morphological characteristics of the $*-ye/o-$ verbal formation. However, the value of Peters’ evidence is most uncertain.

The assumption that $\acute{\alpha}\sigma\pi\alpha\acute{\iota}\rho\omega$ originally had a laryngeal-final root is based on comparison with Indo-European words meaning ‘kick’ *vel. sim.*, e.g. Lat. *spernō* ‘reject, spurn’ < $*sp^{(h)}er-n-H-$; cf. Hitt. *išparra-/išparr-* ‘trample’, Skt *spḥurāti* ‘kick’, Lith. *spirti* ‘kick’, etc. (see LIV² 585–6). But this comparison is made difficult by the unexplained initial α -vowel in Greek. Beekes (2010:152–3, 1374) argues that the

¹⁰³ The provenance of this verb is not all that clear, because we also find $\kappa\tilde{\nu}\alpha\acute{\iota}\omega$ with the same meaning, and the relationship between the stems is obscure.

¹⁰⁴ Other verbs with long-vowel-final roots include 3rd sg. $\psi\tilde{\omega}$ (< $*ps\bar{a}\bar{o}$), $\psi\tilde{\eta}\nu$, and $\chi\rho\tilde{\omega}\mu\alpha$ ‘need, use, etc.’, Ion. $\chi\rho\epsilon\acute{o}\mu\alpha\iota$ < $*k^hr\bar{e}-omai$. But the uncertainties in their etymology and derivation make them unusable for our purposes.

¹⁰⁵ Apparently contradictory evidence for the development of $*CRHy$ / $*CReHy$ sequences is provided by Hom. $\mu\nu\acute{o}\mu\alpha\iota$ ‘woo, court (for a bride)’. This has been regarded as corresponding directly to Cl. Skt *mnāyate* ‘mention’, aor. *a-mnāsiṣuḥ* ‘they mentioned’, and could go back to $*mnH_2-ye/o-$ or $*mneH_2-ye/o-$; for the root see LIV² (447) and EWAia (II 385). But under any such analysis, we would be obliged to suppose an analogical shortening of the root vowel, after the fashion of other verbs in $\tilde{\alpha}\omega$, see §6.8.1.4.

An alternative approach would be to take $\mu\nu\acute{o}\mu\alpha\iota$ as an analogical formation built from $\mu\nu\eta\sigma\alpha\sigma\theta\alpha\iota$, the aorist of $\mu\mu\nu\eta\sigma\omega$ ‘remind, remember, heed, care for, mention’. For this view, see Frisk (1991:238–41) and Beekes (2010:953–4). In such a case this example would not throw a clear light on the regular phonological development of the sequences in question.

¹⁰⁶ On the contribution of the evidence of $\acute{\alpha}\nu-\acute{\alpha}\nu\omicron\mu\alpha\iota$ ‘refuse’, see n. 121.

α - derives from root-initial $*H_2$ -, and in consequence has to argue that the collateral formation $\sigma\pi\alpha\acute{\iota}\rho\omega$ 'flounder (e.g. of fish close to death)' (Arist.) is secondary. As Lubotsky (2006:1008) points out, the reconstruction of an initial laryngeal is made difficult by the absence of a laryngeal reflex in Arm. *spāṛnam* 'threaten' and Hitt. *išparranzi* always assuming that there is indeed a connection between the Greek verb 'flounder' and the Indo-European verb 'kick'.

Lubotsky (2006: esp. 1007–8) argues that the Indo-European verb 'kick' is intimately linked to the word for 'heel' (cf. $\pi\tau\acute{\epsilon}\rho\eta$, Skt *pārṣṇi*- 'heel', etc.) with an original root shape $*T\text{per}H$ - in 'kick' and $*T\text{per}(H)\text{-sne}H_2$ in 'heel' (dissimilated from $*T\text{per}H\text{-sne}H_2$), in spite of the lack of evidence for a root-final laryngeal in the word for heel. The stem of $\acute{\alpha}\sigma\pi\alpha\acute{\iota}\rho$ - is supposed to go back to a complex $*hsprHy$ - < ($*TsprHy$ -). The reconstruction of such a complex initial cluster is motivated by the anlaut differences in the comparative data, but the drawback is that there is no possibility of finding an independent parallel for the proposed diverse phonological developments. Furthermore, one would need to explain in more detail why Greek is supposed to show three different word-initial reflexes from the root $*T\text{per}H$ -. $\acute{\alpha}\sigma\pi\alpha\acute{\iota}\rho\omega$, $\sigma\pi\alpha\acute{\iota}\rho\omega$, and perhaps $\sigma\varphi\upsilon\rho\acute{\omicron}\nu$ 'ankle'. In view of all the difficulties, it seems best to treat deductions based on the evidence of $\acute{\alpha}\sigma\pi\alpha\acute{\iota}\rho\omega$ with a considerable level of caution.

The derivation of $\kappa\alpha\acute{\iota}\nu\acute{\omicron}\varsigma$ from $*k\eta H\text{-}ye/o$ - is open to question also. Traditionally, $\kappa\alpha\acute{\iota}\nu\acute{\omicron}\varsigma$ has been taken to reflect an *aniṭ* root $*ken$ -/ $*kn$ -, which also lies behind Lat. *re-cens* < $*ken$ -t-; cf. OIr. *cét*- etc. The cognate Vedic form *kanyā* 'young woman' seems ultimately to be an *n*-stem, almost always found with a syllabic semivowel, *kaniyan*-, and can be derived from the same root $*ken$ -, albeit with additional suffixation: Ilr. $*kan$ -i-Han- (see EWAia I 297–8 and LIV² 351).

However, Peters seems to follow Thieme's (1963:242 esp. n. 2) suggestion that *kaniyan*- is secondarily derived from an unattested root noun $*kenā$ -/ $*k\eta$ - (i.e. with a laryngeal-final root $*kenH$ -/ $*k\eta H$ -). The notion that this root had a final laryngeal is based on a supposed connection with the Vedic and Avestan verbal root *kan*- 'find pleasure in something' which is certainly *set* < $*kenH$ -, even though, on the face of it, this does not seem particularly close semantically. Thieme also makes an etymological connection with Hom. $\kappa\alpha\acute{\iota}\nu\upsilon\mu\alpha\iota$ 'surpass someone' (Od.8.127, 219). Under this analysis, these disparate meanings are reconciled by assuming that the Indo-European root $*kenH$ - essentially meant 'shine', from which various specializations could result— $*'$ outshine, overshadow someone through one's brightness' → Gk 'surpass someone'; $*'$ to shine, glow (for joy, with joyful longing)' → Ved. 'find pleasure in something'—while the root noun would have retained the basic meaning 'sheen, gloss, glow', from which the derived formation *kaniyan*- in some way came to denote a 'young woman'.

All this seems just about possible, but by no means necessary. It is not clear how connecting Gk $\kappa\alpha\acute{\iota}\nu\acute{\omicron}\varsigma$ and Ved. *kaniyan*- with the Indo-Iranian verbal root $*kan$ - is better than the traditional connection with Lat. *re-cens*, OIr. *cét*-, etc. It seems, therefore, that $\kappa\alpha\acute{\iota}\nu\acute{\omicron}\varsigma$ provides only weak support for the supposed Greek development of $*CRHy$ to $*C\acute{a}Ry$.

There are, in fact, some slightly better potential examples of this change, which Peters did not discuss, though, as we shall see, all of them prove problematical to one degree or another.

One possible example is Μαῖρα , an epithet of the star Sirius in Callimachus. It is typical to compare Ved. *mārici-* ‘beam of light’ (see *EWAia* II 321).¹⁰⁷ Kloekhorst (2008:556) follows Tischler (1990:135–6) in connecting the Hitt. hapax dat./loc. sg. *mar-ri* ‘(sun)light’. The geminate *-rr-* in Hittite suggests that the root was *set*, i.e. **merH-* (for the treatment of **-VRHV-* sequences, cf. *malla-* < **melH₂-* ‘grind’ or *tarra-* < **terH₂-* ‘be strong, able’; see Melchert 1994:79–80).¹⁰⁸ If this is right, then we would need to reconstruct **mr̥H-iH₂* > Μαῖρα ; conceivably it passed through a stage **mr̥H-ya* and so might provide an example of laryngeal loss in this environment.

However, the usefulness of the example is crucially dependent on the relative chronology of the development of **-iH₂* > **-ya* and intervocalic laryngeal loss. If this loss happened before **-iH₂* > **-ya*, then we could simply suppose a development **mr̥H-iH₂* > **mr̥(r)-iH₂* > **mr̥(r)-ya*, rather than invoking Peters’ rule of laryngeal deletion. It is difficult to rule out this potential chronology; if we could find inherited examples of the shape **-Vā* < **-VH-ya* < **-VH-iH₂*, then this might resolve the question in favour of the change of **-iH₂* > **-ya* before the loss of intervocalic laryngeals. But I know of no such examples. In consequence, it is not clear how we can use the evidence of **-ya* feminine formations more generally to investigate the possibility of laryngeal loss after a syllabic resonant and before **y*.¹⁰⁹

Schrijver (1999:127–34) has argued that ἰάινω ‘make warm, delight, heal’ forms a word equation with Ved. *iṣáyati* ‘prosper, is strong’, which, according to his analysis, could be shortened from **iṣāyati* < **His-ṇ-H₂-ye/o-*, i.e. a **-ye/o-* present built from the nasal infix formation *iṣṇāti* ‘impart movement to, give an impulse, send’ < **His-ne-H₂-ti*. This would make *iṣáyati* and ἰάινω parallel in their mode of formation to Ved. *grbhāyati* < **g^hrb^h-ṇ-H-ye/o-* beside *grbhṇāti* < **g^hrb^h-n-eH-*. Under these circumstances, the putative Greek reflex would indicate that a laryngeal has been lost after a syllabic resonant and before **y*.

This account would involve rejecting Jamison’s (1983:49) distinction between *iṣáyati* ‘prosper, is strong’ (an *-aya-* formation) and *iṣayāti* ‘sends, impels’ (of the *grbhāyati* type). Schrijver argues that all Vedic instances of this verb can

¹⁰⁷ Beekes (2010:906–7) dismisses the comparison with *mārici-*, on the basis that this equation would require the reconstruction of Indo-European **a*. I do not understand why this should be the case. Instead, we could suppose that Vedic generalized a full-grade root vocalism, while Greek generalized the zero grade.

¹⁰⁸ Kloekhorst (2008:557) thinks that the Hittite adverb *marri* is also cognate, and he translates it as ‘within a glimpse’ rather than ‘in the heat of emotion or passion(?), rashly(?)’, impetuously(?)’ as Güterbock et al. (1983:185) take it. In any event, if this is cognate, it would shore up support for a root **merH-* rather than **mer-*.

It is not clear whether Latin *merus* ‘pure’ is also cognate. In any case, it would not contribute any further to our understanding of the root structure.

¹⁰⁹ We find a reduplicated **-ye/o-* verb in Hom. μαρμαίρω ‘sparkle, gleam’ (only pres.), and it seems pretty clear that the same root is involved. If we reconstructed **mr̥-mr̥H-ye/o-* for a sufficiently early stage, this might speak for Peters’ sound change. But there are no guarantees, because this is used as a verbal root only in Greek, and so is likely to be a Greek creation. Furthermore, it seems likely that this results from the addition of a **-ye/o-* suffix to a reduplicated formation, and so it is more than possible that the **-ye/o-* was added to a stem **mar-mar-* (< **mr̥-mr̥H-V-*) rather than **-mr̥H-ye/o-*.

be understood as having the sense ‘prosper, is strong’ and go back to a single formation **His-ṇ-H₂-ye/o-*.

However, there is a rather large semantic gap between the nasal formation ‘impart movement to, give an impulse, send’ and the **-ye/o-* formation ‘prosper, is strong’. This is not explained particularly satisfactorily by Schrijver’s putative intermediate semantic stages **‘impel oneself by something, enjoy something’*, nor by his characterization of the semantics of **-ye/o-* verbs formed from nasal presents as involving ‘reversal in the internal direction of the verbal action’ and ‘reduction in the degree of control exerted by the subject’. More importantly, if the meaning ‘prosper, is strong’ is secondary, and if the semantic idiosyncracies of the **-ye/o-* suffix are crucial in its development, then it is unclear why this supposedly secondary sense is also implicit in the old root noun *īṣ-* ‘juice, refreshment, strength, freshness, affluence’; cf. Av. *īš-* ‘refreshment, strength’.

There are other possible analyses of *ἰάινω* worth considering.¹¹⁰ García Ramón (1986:504–5), followed by Beekes (2010:571–2), argued for a heteroclitlic *r/n*-stem lying behind *ἰάινω*, i.e. **His(H₂)-ṇ-ye/o-*; this would no longer constitute an example of laryngeal deletion after a syllabic resonant and before **y*.

More generally, there is a difficulty in using evidence from this extensive family of words, because there are two different root shapes involved, one *seṭ* (e.g. *ἰνῶ* ‘empty out, purify’ and Ved. *iṣṇāti* ‘throw’) and one *aniṭ* (e.g. the Indo-Iranian root noun Ved. *īṣ-*, Av. *īš-*). There is no consistent correlation between the shape of the root and the two semantic spheres of ‘healing’ and ‘movement’.¹¹¹ It is conceivable that there was an early confusion of two originally separate roots.

The morphological and phonological uncertainties involved with this example make it difficult to use *ἰάινω* to demonstrate laryngeal deletion, pending a more definitive analysis.

It might be possible to analyse *μαράινω* ‘quench, destroy’ as a **-ye/o-* verb **marṇ-ye/o-* derived from a nasal present precursor; cf. *μάροναμαι* ‘fight, battle’ and Ved. *mṛṇīhi* and thematic *mṛṇāti* ‘crush’, both from a root **merH₂-* (see LIV² 440, Beekes 2010:904, 907). Insofar as *μαράινω* lacks a laryngeal reflex, it might be taken as evidence for deletion in this environment.

However, it is odd that we seem to have adjacent reflexes of syllabic **r* and syllabic **ṇ* in this formation. This does not seem a possible syllabification in Indo-European or early Greek terms. For similar reasons, Meier-Brügger’s (1989:62–7) reconstruction **mṛṇ-ye/o-* from **mer-* ‘to die away’ (cf. Lat. *morior*) is difficult to accept (see Beekes 2010:904). Similarly difficult is LIV²’s (440 n. 2) suggestion that *μαράινω* could be secondarily built from a stem **maran-*, abstracted from 3rd pl. **marananti* < **mṛ-ṇ-H₂-enti*. This syllabification scheme would be very odd. A viable alternative would be to suppose that this was a deverbative *-αίνω* verb from

¹¹⁰ For a full discussion of the large collection of possible cognate forms and previous literature, see García Ramón (1986).

Some possibilities are less persuasive than others: e.g. it has been suggested that *ἰάινω* is an analogically built secondary *-αίνω* formation from *ἰάομαι* ‘heal’ < **īsa-yo-mai* (see Brugmann 1897:1086, Risch 1974:291, Chantraine 1948:356–7), in the same way that we find *δράινω* beside *δράω*; on this type of derivational route, see Fraenkel (1906:20ff.). However, this seems unlikely in view of the disagreement in the length of the initial vowel in *ἰάινω* and *ἰάομαι*.

¹¹¹ For discussion, see García Ramón (1986:502–8).

the root **mar-* < **mrH₂-*. But in that case this would not constitute valid support for Peters' rule of laryngeal deletion.

It is clear that φαίνω 'show, make visible; appear' is a secondary deverbative in Greek ultimately built up from the root **bʰeH₂-*; cf. Ved. *bhāti* < **bʰeH₂-ti* (cf. LIV² 68–9). In order to understand the creation of the Greek root φαν-, it seems best to suppose a stage with a nasal infix present, e.g. 3rd pl. **bʰn-H₂-énti* (cf. Arm. *ba-nam*). If a **-ye/o-* verb was formed directly from this stem, giving **bʰn-H₂-ye/o-*, then an outcome φαίνω could reflect laryngeal deletion after a syllabic resonant and before **y*.

However, this example is difficult to use, because there is a viable alternative analysis. A root **pʰan-* could have been abstracted from a 3rd pl. **pʰananti* < **bʰn-H₂-énti* at a certain stage. This root **pʰan-* could have spread to the aor. **e-pʰan-s-a* > **epʰāna* > ἐφηνα (which cannot be from **e-bʰn-s-n* directly, since this would yield **epʰāsa*). It would not be surprising for a **-ye/o-* present to have been created from this same root **pʰan-*, perhaps being back-formed from the new aorist.

The reduplicated formation χαρχαίρω might also be relevant here, if it is a **-ye/o-* formation built from the same *set* root as Ved. *ca-kar-ti* 'make mention of, praise' (aor. *akāriṣam*) and YAv. *carəkəramahī* 'we praise' (see EWAia I 310–11, Beekes 2010:645). In this case we might be tempted to suppose that **kr̥-kr̥H-ye/o-* > χαρχαίρω, with deletion of the laryngeal. However, the comparison with the Indo-Iranian forms only really exists on a formal level. The semantics of the Greek verb are not very clear because it occurs only in Homer Il.20.157, *κάρκαριε δὲ γαῖα πόδεσσιν* and thereafter in grammarians. It may well mean 're-sound, *vel sim.*' (Hesychius gives ἐκάρκαριον· ψόφον τινὰ ἀπετέλουν 'produce a noise'), but it could equally well mean 'shake, *vel sim.*' In any event, even if this Greek verb denotes the production of some sort of sound, this hardly constitutes a close semantic match for the Indo-Iranian forms, except in the most general possible terms. It seems difficult to use this form to draw any confident conclusions.

The inconclusive nature of much of the rest of the evidence results from the fact that all other potential examples have a root-final *-l-* in Greek terms, and this allows for morphological and phonological ambiguities.

We know that Att.-Ion. βάλλω 'throw, hit' is from a *set* root **gʷelH₁-*; cf. Arc. δέλλω/ζέλλω beside aor. ἐβλητο. The shape of the root is absolutely clear, though there are no certain Indo-European cognates (see Beekes 2010:197–8, and cf. LIV² 208). The Attic-Ionic geminate *-λλ-* in βάλλω seems to point towards an original **-ly-* sequence. Insofar as there is no laryngeal reflex, this might constitute evidence for laryngeal deletion, i.e. **gʷlH₁-ye/o-* > **gʷl-ye/o-* > βάλλω.¹¹²

However, the probative value of this example is somewhat limited by the availability of an alternative morphological analysis. Sihler (1995:519) posits a thematized nasal present *gʷal-nō* ← **gʷalnēmi* < **gʷl-ne-H₁-*, as does LIV² (208 and n. 4). The regular treatment of an ancient **-ln-* sequence in Attic-Ionic would involve loss of **n* with compensatory lengthening, and so we might have expected

¹¹² The full-grade formation δέλλω/ζέλλω could be a later development, since there are a great many examples of secondary full-grade **-ye/o-* verbs among resonant final roots (see §7.2.3.15).

$g^{w}al-nō$ to yield $*bālō > *bēlō$; cf. Att.-Ion. στῆλη (Lesb. and Thess. σταλλᾱ) < $*stalnā$, and ὀφείλω (Lesb. ὀφέλλω) < $*op^{h}elnō$ (see Lejeune 1972:153–4). LIV² (208 n. 4) supposes that the $*-ln-$ sequence was retained in $g^{w}al-nō$ by analogical pressure, and underwent a later assimilation yielding βάλλω; cf. ἀπόλλυμι < $*ap-ol-nū-mi$ (see Lejeune 1972:153–4).

A zero-grade $*-ye/o-$ present might lie behind θάλλω ‘sprout, grow, thrive’, and there is a possibility that this was a laryngeal-final root, in which case it might be an example of laryngeal deletion in the environment $*CRHy$. This root is also found in Albanian *dal*, *del*, and Arm. *dalar* ‘green, fresh’. A root-final laryngeal is sometimes reconstructed, based on the potential word equation of θαλερός ‘stout, sturdy’ (e.g. Il.3.26) and Arm. *dalar*, which could both go back to $*d^{h}H_2lH_1-ro-s$.¹¹³ In this case it is conceivable that θάλλω goes back to < $*d^{h}al-ye/o-$ < $*d^{h}H_2lH_1-ye/o-$.

This evidence is problematical on at least two counts. It is possible that the example does not involve the $*-ye/o-$ suffix, if LIV² (132) is right in regarding it as a thematized nasal infix present ← $*d^{h}l-n(e)-H_1-$, with a parallel development to that of βάλλω. Even if the $*-ye/o-$ suffix is involved, the evidence for a root-final laryngeal is not beyond doubt; Clackson (1994:118ff.) downplays the significance of the word equation θαλερός ~ Arm. *dalar*, noting that *-ar-* is a productive suffix in Armenian.

Another potential example of Peters’ sound change might be sought in σκάλλω ‘stir up, hoe’. It could go back to $*skl^{h}H-ye/o-$, if it belongs to the *set* root $*skelH-$; cf. Hitt. *iškallāri* ‘slit, split, tear’, Lith. *skeliù*, *skēlti*, and a corresponding zero-grade $*-ye/o-$ verb *skiliù* (*skilti*)—see LIV² (553).

Beekes (2010:1340–1) points out that we could instead suppose a thematized nasal present for σκάλλω (< $*skal-ne/o-$ < $*skl^{h}-ne-H-$), as has also been variously supposed for βάλλω, and θάλλω.

Vine (1999:586 n. 51) takes a different line, and suggests that a root $*skal-$ might have arisen secondarily out of a formation like $*skl^{h}H-e/o-$. In this case we could have a secondary, though potentially old, $*-ye/o-$ formation without positing a sound change $*CRHy > *CaRy$.

If LIV² (469–70) is correct in connecting πάλλω ‘brandish, shake; draw lots’ with Slovene *plāti* (1st sg. *póljem*) ‘surge’, then this could provide a basis for reconstructing a *set* root $*pelH_1-$, though under such an analysis the aor. ἐπηλα (< $*e-pal-s-a$) would have to be an innovation. From such a root, it would be possible, in principle, to suppose that a zero-grade $*-ye/o-$ formation $*plH_1-ye/o-$ was formed, yielding πάλλω by Peters’ laryngeal deletion. However, a viable alternative would be to reconstruct a nasal present with later thematization, i.e. $*pl^{h}-n-H_1-e/o-$, in the same way as we argued in the case of βάλλω, and indeed this is the approach taken by LIV² (*loc. cit.*).¹¹⁴

¹¹³ Here, we assume that inter-consonantal $*H_2$ in the root should be reconstructed, following Beekes (2010:530–1), to account for the *a*-vocalism in Greek and Armenian in preference to reconstructing $*a$ for Indo-European.

¹¹⁴ Various middle forms with the root παλ- have the meaning ‘vault’, e.g. πάλλομαι and root aor. πάλτο. Probably these have a different origin from active πάλλω ‘shake’ and are to be left out of consideration here, if Leumann (1950:60ff.) was correct to trace this usage back to a reanalysis of the compound forms of ἄλλομαι ‘jump’ κατ-επ-αλ-το → κατ-επ-αλ-το, ἀν-επ-αλ-το → ἀν-επ-αλ-το, and from this new root παλ-, πάλλομαι ‘vault’ was back-formed.

Overall, the case for Peters' sound change does not seem secure, and it seems better to accept that **CRHy* sequences behaved in a parallel fashion to **CRHC* sequences. This being the case, $\delta\rho\tilde{\alpha}\omega$, $\pi\lambda\acute{\omega}\omega$, $\kappa\nu\tilde{\omega}$, and $\sigma\mu\tilde{\omega}$ cannot be taken as unambiguous examples of a full-grade **-ye/o-* formation.

6.8.1.4. Roots with the Shape **C(C)eH-*

A number of thematic verbs built from monosyllabic Greek roots ending in the short vowels $-\alpha-$, $-\varepsilon-$, and $-\omega-$ go back to laryngeal-final roots in Indo-European terms. It seems reasonable to reconstruct a consonant-initial verbal suffix **-Xe/o-*, where *X* was a consonant lost intervocalically in Greek: **-ye/o-* seems an obvious possibility, e.g. $\delta\acute{\epsilon}\omega$ 'bind' < **dH₁-ye/o-* from the root **deH₁-*; cf. Hitt. *tiya*,¹¹⁵ Ved. *dyati*, OAv. *ni.diiātqm* (see LIV² 102), and $\sigma\pi\acute{\alpha}\omega$ 'draw, pull' < **spH₂-ye/o-* from the root **(s)peH₂-*, and cf. the Arm. nasal present *hanem* 'draw, pull' (see LIV² 575).¹¹⁶ However, the use we can make of these examples will always be limited to a certain extent by the fact that there is no reflex of the **-ye/o-* suffix, direct or indirect. It would also be perfectly possible to assume that such forms arose by thematization of old root presents, with generalization of the zero-grade pre-consonantal form of the root. Nevertheless, it seems reasonable to seriously entertain the idea that these were **-ye/o-* verbs for the purposes of this study, in that an inclusive approach should ensure that all potential counterexamples to Sievers' Law are explored.

These examples do not seem to be ambiguous with regard to their root vocalism, being zero-grade rather than full-grade **-ye/o-* formations. Otherwise, we might have expected root-final long vowels to emerge, i.e. **dēō* < **deH₁-ye/o-* and Att.-Ion. **spēō* < **spāō* < **speH₂-ye/o-*.¹¹⁷

The only difficulty with this line of reasoning is that we find plenty of examples of denominative $-\tilde{\alpha}\omega$ verbs built from long $\tilde{a}$ -stem nouns using the **-ye/o-* suffix. Unless the suffix induced a zero-grade in the final element of the stem in such denominatives (which is a possibility), then we have a probable example of an analogical shortening: **-eH₂-yō* > **-ā-yō* → $-\tilde{\alpha}\omega$; this must be an old shortening, preceding the change from **ā* to η in Attic-Ionic.¹¹⁸ If such shortening occurred more generally, then a root-final short vowel would not guarantee a zero-grade formation. Nevertheless, in the absence of any positive indication to the contrary, the simplest analysis which explains the attested forms is to reconstruct zero-grade formations.

Insofar as **dH₁-ye/o-* and **spH₂-ye/o-* contained a word-initial obstruent cluster preceding **-ye/o-*, this should feed into a discussion of Lindeman's Law effects and

¹¹⁵ For the development of Hitt. *tiya* < **deH₁-*, see Melchert (1983:14 n. 30) and Kloekhorst (2008:880–1).

¹¹⁶ These examples seem to show that even though laryngeals were frequently lost after a consonant and before **y*, this loss probably did not take place in initial syllables (see Pinault 1982).

¹¹⁷ Note that Lindeman (1997:111–13) argues for the regular development of **-VHyV-* > **-VyV-* within Indo-European, but this cannot be supported here, whatever our view of the formation (see §3.7.4).

¹¹⁸ We seem to see a failure of such otherwise systematic shortening of the stem vowel in $\delta\iota\psi\tilde{\eta}\nu$ 'be thirsty' (cf. $\delta\iota\psi\eta$, in A.) and $\pi\epsilon\iota\nu\tilde{\eta}\nu$ 'be hungry' (cf. Hom. $\pi\epsilon\iota\eta\eta$). But elsewhere it seems to be quite general.

the weight of obstruent clusters in such processes. If we thought that obstruent clusters should be heavy for Sievers' Law and that Sievers' Law effects should be manifested at word boundaries, then we might have expected $*dH_1\text{-}iye/o-$ > $*diyō$ rather than $δέω$ and $*spH_2\text{-}iye/o-$ > $*spiyō$ rather than $σπάω$. However, the analysis would be complicated considerably if a prop-vowel could have developed beside the laryngeal already in Indo-European, and if this could have played a role in determining the environment for any Sievers' and Lindeman's Law effects. Such possibilities need to be kept in mind.

Matters are not quite so straightforward when roots of the shape $*C(C)eH$ - show comparative evidence for a full-grade formation. LIV^2 (520–1) reconstructs a full-grade $*\text{-}ye/o-$ formation lying behind $ἄετται$ 'satisfy oneself' < $*seH_2\text{-}ye/o-$, equating Toch.B *soyem* 'be satisfied'. For the shape of the root, compare aor. $ἄσαι$ < $*seH_2-$; cf. Ved. *ásinvant-* 'insatiable' and Hitt. *šaḥ-* 'stuff, clog' (see Kloekhorst 2008:690–1). In order to maintain this reconstruction, LIV^2 has to suppose an analogical shortening of the expected long $\bar{a}$ -vowel in $ἄετται$. It is important to recognize that Greek does not constitute an independent witness with respect to the putative full-grade root vocalism in Indo-European. The reconstruction of the vocalism is solely reliant on the Tocharian evidence. From a Greek point of view, zero-grade $*sH_2\text{-}ye/o-$ would be a more suitable reconstruction. For this reason, $ἄετται$ cannot make an independent contribution to the sum total of the Greek evidence for full-grade $*\text{-}ye/o-$ formations in early Greek and in Indo-European. At the same time, we would have to be mindful that if Greek really did have a zero-grade form, then the word-initial consonant cluster in the putative $*sH_2\text{-}ye/o-$ did not apparently provide the conditions for a syllabic semivowel in the suffix, i.e. we do not find $*hiyetai$ < $*sH_2\text{-}iye/o-$ but $ἄετται$ < $*sH_2\text{-}ye/o-$.

A slightly different problem is raised by Att. $δια-ττάω$ (simplex Ion. $σῶσι$), which has been supposed to go back to a full-grade formation $*\text{-}kyeH_2\text{-}ye/o-$ from the root $*kyeH_2-$; cf. $σῆ-θ-ω$ 'sieve, sift' (Hp., Dsc., etc.), Hitt. *kinanzi* 'sort' (see LIV^2 360–1, Kloekhorst 2008:477). The clear reflex of a root-initial $*ky-$ cluster in Greek would make it impossible to suppose a zero-grade formation $*kiH_2\text{-}ye/o-$, which should have yielded $*kiyō$ (unless one accepted the Francis–Normier view of the development of $*CIHC$ sequences: see §3.5.2). However, if the root was full grade, $*kyā\text{-}e/o-$ could be understood as resulting from a thematic present $*kyeH_2\text{-}e/o-$, and there is no strong reason to suppose a $*\text{-}ye/o-$ suffix.

It is possible that the Homeric present infinitive form $θῆσθαι$ 'suckle' goes back to a full-grade $*\text{-}ye/o-$ present formation $*t^h\bar{e}\text{-}ye\text{-}st^hai$ < $*d^heH_1\text{-}ye/o-$, but the ambiguities wrought by Greek vowel contraction make it equally possible to derive this from an athematic formation $*t^h\bar{e}\text{-}st^hai$. The only reason for considering the possibility of a $*\text{-}ye/o-$ suffix lies in the comparative evidence provided by Arm. *diem*, Latv. *dēju*, and OHG. *tāen* (see LIV^2 138–9 s.v. $*d^heH_1(y)-$). Given the propensity for Indo-European roots to build more than one type of present stem, we have no guarantee that the Greek evidence reflects a full-grade $*\text{-}ye/o-$ verb, and the evidence of the other languages can only be assessed in relation to the history and development of their own verbal systems.¹¹⁹

¹¹⁹ There is a certain amount of evidence for a form of this root with an additional $*i$ extension, e.g. in Ved. *dhēnú-* and zero-grade *dhūtá-* 'sucked' < $*d^hiH_1\text{-}to$, which appears to result by laryngeal metathesis from $*d^hiH_1i\text{-}to$. It seems possible that the semivowel was incorporated into the root by

It is difficult to understand the evidence of λαίειν· φθέγγεσθαι ‘speak loud’ (Hsch.). *LIV*² (400–1) assumes that it goes back to **leH₂-ye/o-*. The reconstruction of such a root and such a formation could be supported by comparing Lith. *lóju* (*lóti*) ‘bark’, OCS *lajq* (*lajati*), Lat. *lātrāre* ‘bark’, Arm. *lam*, Ved. *rāyasi* ‘bark’, and YAv. *raiiant-* (for reservations about the value of this Indo-Iranian evidence, see §6.3.2.1).

However, we might have expected **leH₂-ye/o-* to yield a form with a long root vowel and no trace of the newly intervocalic **y* being retained, i.e. **lēn* or Att.-Ion. **lēn*, or else a form with shortening of the root vowel as we find in other vowel-stem verbs, i.e. **lān*. If the Hesychian form is not from Attic or Ionic, we cannot know whether the root vowel was originally long or short, but the intervocalic *iota* would still be unexplained in any dialect. The result might be more explicable if we accepted Lindeman’s (1997:111–13) idea that a sequence **-Hy-* > **-yy-*, in which case λαίειν could be considered the regular outcome. However, we have seen that this change is difficult to demonstrate and has only minimal support.

A different approach is taken by *LIV*² (400–1), which claims that the **-ye/o-* suffix was restored in Proto-Greek, i.e. **lāye-* > **lāe-* → **lāye-*, yielding the form found in Hesychius. No details or parallels are given for such a process. It is difficult to see how a morphological process could restore lost elements in the phonological structure in the fashion suggested. No parallel can be drawn with the restoration of intervocalic [s] in specific morphological categories, for in this case [s] was very stable in other environments. By contrast, **y* was lost in almost all the positions where a **-ye/o-* suffix could occur; only where **-ye/o-* followed **s* or **w* was a semivowel reflex preserved, and its status as a clear suffix was lost even there. In any case, the occurrence of this form in Hesychius hardly justifies such desperate measures; the uncertain nature of the evidence means that λαίειν will not prove suitable for drawing wider conclusions in our enquiry.

It seems, therefore, that none of the potential examples of **-ye/o-* formations from roots of the shape **C(C)eH-* can be used with any confidence in determining the principles governing semivowel syllabicity alternation at an early stage. Nor can the potential evidence for full-grade **-ye/o-* formations in verbs of this type be legitimately used in elucidating the morphotactic properties of the **-ye/o-* suffix.

6.8.1.5. Roots with the Shape **HeRH-* and **HReH-*

Interpreting the evidence from roots of the shape **HeRH-*, **HReH-*, and **HRH-* involves many of the same issues which are associated with understanding the treatment of **CRHy* sequences and roots with the shape **C(C)eH-*; on the one hand, a zero-grade formation **HRH-ye/o-* seems to involve a **CRHy* sequence, and, on the other hand, roots of the shape **HReH-* confront us with some of the

resegmentation of a **-ye/o-* suffix or reanalysis of an **i-* present at a very early stage. Alternatively, the simpler form of the root could be secondary, and result from a reanalysis of precisely the opposite nature. It is not clear how this might affect our view of the value of the morphological evidence offered by these forms for the history and morphotactic properties of the **-ye/o-* suffix. It might make us cautious in drawing inferences from formations built from this root.

same potential full-grade ~ zero-grade ambiguities as $*C(C)eH$ - roots. In addition, the vocalism of $*HeRH$ - roots will be difficult or impossible to ascertain, since a full-grade vowel would be indistinguishable from the word-initial vowel that would arise in a zero-grade root $*HRH$ -, either by prothesis before $*R$ or by Rix's Law before $*R$ (depending on the syllabification in the particular formations in question).

An appreciation of the complications involved is easily conveyed by an example such as $\acute{\alpha}\rho\acute{o}\omega$ 'plough'. A wide range of comparative evidence suggests that the root was $*H_2erH_3$ -, that there was a $*-ye/o$ - present in Indo-European, and that the root had full-grade vocalism; cf. Lat. *arō*, *-āre*, OIr. *-air*, OHG *erien*, Lith. *ariù* (*árti*), OCS *orjǫ* (*orati*) (see LIV² 272–3).

Insofar as one accepts that laryngeals were obstruents in Indo-European, and insofar as one takes the view that any anaptyctic vowels which may have developed beside them already in Indo-European did not play a role in determining the conditioning environment for Sievers' Law, and so long as we ignore the likely application of Pinault's rule, the root in $*H_2erH_3$ - ye/o - could be construed as a heavy sequence for Sievers' Law. Under all of these conditions, we would have an apparently well-attested counterexample to Sievers' Law among the $*-ye/o$ - verbs in Indo-European.

However, we need to use this evidence with caution. From a purely Greek point of view, it is far from clear that $\acute{\alpha}\rho\acute{o}\omega$ continues a full-grade $*-ye/o$ - formation. As we shall see in a moment, such a reconstruction relies entirely on external evidence. Under most circumstances this might be sufficient, but, as we have already argued, the historical status of full-grade $*-ye/o$ - verbs requires some scrutiny, and ambiguities of this sort in individual verbs in individual languages need to be highlighted, in order to make an accurate assessment of the level of support for this category in an Indo-European context.

For reasons already mentioned, the vocalism of a root with this shape is probably ambiguous in Greek. An initial vowel would have developed in $\acute{\alpha}\rho\acute{o}\omega$ regardless of the original root vocalism, owing to the word-initial laryngeal. The only question is whether the phonological developments in the rest of the root would rule out some other formation. If we take it for granted, for a moment, that the $*-ye/o$ - suffix was involved, it is pertinent to ask whether a zero-grade formation such as $*H_2rH_3$ - ye/o - would still have yielded $\acute{\alpha}\rho\acute{o}\omega$. The expected outcome of an $*HRHy$ sequence depends on a number of factors. It might be reasonable to assume a development parallel to that of $*CRHC$ sequences, i.e. $*CRH_xC > *CR\tilde{V}_xC$.¹²⁰ But such a development might have been interrupted, if Rix's Law applied before the development $*CRH_xC > *CR\tilde{V}_xC$. In such a case the regular development might have been $*H_xRH_yy > *\tilde{V}_xRH_yy > *\tilde{V}_xR\tilde{V}_yy$, assuming that Pinault's rule was not an ongoing constraint affecting new early Greek examples of post-consonantal laryngeals before $*y$.¹²¹ This would be in accord

¹²⁰ It seems unlikely that verbal formations would undergo the alternative development $*CRH_xC > *C\tilde{V}_xR\tilde{V}_xC$ (as in $\theta\acute{\alpha}\nu\alpha\tau\omicron\varsigma$ as opposed to $\theta\nu\eta\tau\acute{o}\varsigma$), if this outcome was determined by the accent lying on a syllabic resonant; in this formation the accent would have originally fallen on the suffix and not the root.

¹²¹ An alternative approach would be to follow Peters (1980:80–1 n. 38) in assuming that $*CRHy >$ Proto-Greek $*C\acute{a}Ry$, including examples with a word-initial laryngeal. We have already seen that the

with Normier's (1980b:20) view that an **HRHy* sequence yielded *VRV̥-*: e.g. he reconstructed **H₂lH₁-ye/o-* to account for ἄλλέω 'grind' (cf. Arm. *alam*) and is followed by LIV² (277). Clackson (1994:91–2) reviewed the potential evidence for a long-vowel outcome of **HRHC* sequences and concluded that there are almost no reliable instances of such outcomes, and Normier's development is hard to contradict.

So the Greek evidence is likely to be ambiguous with regard to the root vocalism of ἄρῶ. The Celtic evidence is also ambiguous, since a zero-grade root **H₂rH₃-* should probably have yielded the same result; cf. Ml. *art* 'bear' < **H₂rtko-* and Hitt. *hartagga-* (see e.g. Joseph 1982:51, Ringe 1988:429–33).

Latin clearly has a full-grade root, but it is much less clear that *arō*, *arāre* must represent a **-ye/o-* verb. It would be equally possible to suppose an originally athematic root present (see e.g. Schrijver 1991:399); in any event, we have to suppose that this verb was drawn into the first conjugation at some stage, instead of exhibiting the stem-final vocalism which might have been expected to result from a root-final **-H₃*. Such analogical reshaping gives some cause for concern in using this evidence.

The Germanic and Baltic evidence constitutes the principal support for a full-grade **-ye/o-* formation from this root in Indo-European. This might not be an entirely reliable configuration of evidence to support such an otherwise atypical formation.

Another source of uncertainty lies in suffixation. We have no direct evidence that ἄρῶ was a **-ye/o-* verb: it could equally well constitute the thematization of a root present, and there is no particular reason to suppose that Indo-European only had one present formation from this root. From a comparative point of view, the assumption of an inherited **-ye/o-* verb might be the more economical hypothesis in the absence of any evidence to the contrary, and the principle that we should be as inclusive as possible for the purposes of this study might also make us minded to accept such a conclusion. However, the reconstruction of a **-ye/o-* present brings with it some additional complications.

The Celtic and Lithuanian evidence points to the loss of the word-internal laryngeal after a consonant and before **y* (by Pinault's rule). This throws the antiquity of the Greek form into doubt. If we accept that Pinault's rule ought to be reflected in Greek (and there is a good deal of evidence suggesting that we should), then it is difficult to see how ἄρῶ could represent a direct outcome of **H₂erH₃-ye/o-*. It seems better to accept that ἄρῶ was analogically built (or rebuilt) within Greek, with the laryngeal or its apparent reflex reintroduced either from other aspect stems (e.g. aor. ἤροσα) or derived nominals. Under these circumstances, the example cannot be accepted, in a straightforward fashion, as a direct continuation of an Indo-European formation.

evidence for such a change is very limited and uncertain where the initial consonant is not a laryngeal. Peters cites only one potential example with a word-initial laryngeal, ἀν-ἀνομιαι 'refuse', which he derives from **H₂n(H)-ye/o-* (or **H₂en(H)-ye/o-*). We may compare ἀνος 'words, praise', but the lack of certain external cognates makes the example difficult to use with any certainty (see Beekes 2010:39–40).

Even if one does not accept Pinault's rule, the intrinsic ambiguities in root vocalism and suffixation of roots with this shape must still be carefully borne in mind.

To the extent that one accepts these observations, the Greek evidence is undermined as independent support for an Indo-European full-grade **-ye/o-* formation in this instance, as is the usefulness of the example for reconstructing the phonological behaviour of the inherited **-ye/o-* verbal suffix.

The same ambiguities in vocalism and suffixation arise in all roots with the shape **HeRH-*, e.g.:

ἀλάομαι 'wander, roam' < **H₂lH₂-(ye/o)-* or **H₂elH₂-(ye/o)-*, cf. Umbr. *amb-oltu* 'must go around', Lat. *amb-ulō* (see LIV² 264 s.v. **H₂elH₂-*);

ἄάω 'damage' < **H₂wH₂-(ye/o)-* or **H₂ewH₂-(ye/o)-*, cf. Alc. ἀάατα beside ἄτη 'damage, guilt' (see Beekes 2010:3).¹²²

As we have already seen in discussing roots of the shape **C(C)eH-*, even if we accept the possibility of a **-ye/o-* verbal suffix, it might be difficult to distinguish between full-grade and zero-grade formations from roots of the shape **HReH-*, if we allow for the possibility of analogical shortening in Greek vowel stem verbs, e.g.:

ἀλέω 'grind' could be from **H₂lH₁-ye/o-* or **H₂leH₁-ye/o-* with analogical shortening, cf. Arm. *alam* (see LIV² 277 s.v. **H₂leH₁-*),¹²³

ἐρέω 'ask', cf. fut. ἐρήσομαι, Hitt. *ariyezzi* 'consult an oracle'; both forms could represent the outcome of **H₁rH₁-ye/o-*, but the Greek forms could also derive from a full-grade **H₁reH₁-ye/o-* with analogical shortening (see LIV² 251 s.v. 1. **H₁reH₁-*),¹²⁴

Myc. *e-re-e* 'to row' (infin.) perhaps from **H₁rH₁-ye/o-* or **H₁reH₁-ye/o-*, cf. Lith. *iriù* (*irti*) with a **-ye/o-* present, and with the same root OIr. *ráid*, ON *róa*, etc. (see LIV² 251–2 s.v. 2. **H₁reH₁-*);

ἐάω 'permit' could be from **H₁wH₂-ye/o-* or **H₁weH₂-ye/o-*, cf. Ved. *váyati*, YAv. *frā-uuaieiti*, Latv. *vājēt* (see LIV² 254),¹²⁵

¹²² Beekes (2010:3) is completely open in reconstructing the root **H₂ewH₂-* mechanically; we have no external cognates and we have no evidence that this was ever a laryngeal-final root. If, instead, a preform **awa-ye/o-* is reconstructed for a very early stage of Greek, it would not fall under Sievers' Law.

¹²³ Note that Beekes (2010:65) reconstructs an athematic present lying behind ἀλέω, and LIV² (277) admits the possibility that it could have been rebuilt from the aorist. The Armenian form could go back to a nasal infix present (see Klingenschmitt 1982:93–4).

¹²⁴ For an alternative view, see Chantraine (1999:370). The question of the root shape involved here is actually far from clear. LIV²'s solution fails to explain the plethora of ancient collateral present formations beside ἐρέω, which tend to suggest instead a root of the shape **erew-/erw-*, e.g. the Cretan agent noun ἐρευταί 'enquirers' (the term for certain Cretan state officials), possibly Myc. *e-re-u-te-re* (= *ereutes*), Hom. ἐρεεῖνω 'interrogate', Hom. ἐρευνάω 'seek after, enquire', and Hom. εἶρομαι could be from **erw-omai*. In this case there would be no obvious external Indo-European cognates. There would also be no need to suppose a **-ye/o-* verb lying behind ἐρέω.

¹²⁵ In his detailed study of Greek ἐ(φ)άω, Nussbaum (1998:45) concludes that the present stem need not be ancient, but might be best regarded as analogical on the aorist and future forms.

ἀμάω ‘cut down, reap, mow’ perhaps indirectly from $*H_2mH_1\text{-}ye/o\text{-}$ or $*H_2meH_1\text{-}ye/o\text{-}$, if we may compare OE *māwan*, OHG *māen*, Hitt. *hamšha(nt)*- ‘spring, harvest time’ (see LIV² 279, Beekes 2010:84).¹²⁶

6.8.1.6. Vowel Stems from $*CeCH\text{-}$ Roots

In roots where we find a word-internal vowel reflex from a post-consonantal prevocalic laryngeal, we also face some problems of interpretation.

The root vocalism of a form like γελάω ‘laugh’ is unambiguous, but the suffixation is less clear. One might well choose to reconstruct $*\tilde{g}elH_2\text{-}ye/o\text{-}$; cf. Arm. *cicalim* (see LIV² 162). It might be possible to construe the root as a heavy sequence at a sufficiently early stage. But we would have to accept that γελάω did not undergo Pinault’s rule. Alternatively, as Tucker (1990:209, 251) suggests, the Greek form may be back-formed from the aorist, or it could be a $*\text{-}ye/o\text{-}$ denominative from $*gelas\text{-}$ (see Chantraine 1999:214 and Beekes 2010:264–5, who appears to opt for the denominative explanation). If it is a denominative, it is unclear whether it was formed at a very early stage from a potentially heavy nominal stem, i.e. $*\tilde{g}elH_2\text{-}s\text{-}ye/o\text{-}$, or later from the light Greek reflex of this stem, i.e. $*gelas\text{-}ye/o\text{-}$. However we construe the example, the morphological and chronological ambiguity robs it of any usefulness in our enquiry.

It appears that γηράω ‘grow old’ is built from the laryngeal-final root $*\tilde{g}erH_2\text{-}$. Insofar as a formation $*\tilde{g}erH_2\text{-}ye/o\text{-}$ might be implicated, this configuration would appear to constitute a heavy sequence before $*\gamma$. However, an old lengthened-grade root vowel is otherwise unknown among $*\text{-}ye/o\text{-}$ verbs. Given this and the apparent failure of Pinault’s rule in this example, it might be better to suppose that this was an analogical formation incorporating the long root vocalism of the aorist ἐγήρα. In such a case the value of this evidence would be very much dependent on the chronology of its formation, which we do not know.

6.8.2. Examples with Root- and Stem-final $*s$

We have already seen that it is not possible to detect any distinction between the reflexes of $*\text{-}sy\text{-}$ and $*\text{-}siy\text{-}$ between simple vowels (though after diphthongs the situation is different). However, it seems very likely that such a distinction must have existed (see §3.7.1). We find variant forms in some verbs such as Hom. τελέω and τελεῖω ‘complete, finish’ apparently $< *teles\text{-}ye/o\text{-}$ (cf. τέλος (n.) ‘end, goal, etc.’) and νεικέω (Hom., Hdt.) and epic νεικεῖω ‘quarrel, abuse’ $< *neykes\text{-}ye/o\text{-}$ (cf. νεῖκος (n.) ‘feud, strife’ (Hom.)), and after other vowels we consistently find

¹²⁶ The root-final vocalism in Greek and Germanic do not match, and to maintain this comparison it is necessary to suppose a Greek assimilation of $*H_2\dots H_1 > *H_2\dots H_2$, or $*a\dots e > *a\dots a$. Alternatively, we have to suppose a morphological replacement of the supposed Greek outcome $*amē\text{-}ye/o\text{-}$ by ἀμάω (see Peters 1980:91 n. 41). In such a case we could hardly claim certainty about any formation which preceded the creation of ἀμάω. Beekes (2010:84) follows Schrijver (1991:20) in assuming that the Greek verb is derived from a nominal stem $*H_2mH_1\text{-}eH_2\text{-}$. Either way, this form cannot tell us much about primary $*\text{-}ye/o\text{-}$ verb formation, or the validity or correct formulation of Sievers’ Law.

diphthongs or long vowels depending on the nature of the preceding vowel, e.g. *νάω* ‘live, inhabit’ (Hom.) < **nas-ye/o-* (cf. aor. *ἐνασσα*); *κονίω* ‘cover with dust’ < **konis-ye/o-* (cf. *κόνις* ‘dust, ashes’).

There is no realistic possibility that any **-iye/o-* verbs could be concealed in this category. However, given that potential variation between **-ye/o-* and **-iye/o-* would be undetectable in principle, the reconstruction of **-ye/o-* rather than **-iye/o-* in this category is merely a highly probable inference rather than an independently verifiable fact. This makes such evidence more or less unusable for our purposes. As it happens, there are no examples of a heavy sequence consisting of a simple vowel followed by **-s-* preceding the suffix among primary or deverbative formations, and so this limitation in the evidence does not serve to exclude any potentially important counterexamples to Sievers’ Law.¹²⁷

After diphthongs and after consonant clusters, on the other hand, the situation is rather different, as the examples *ἰαύω* ‘stay the night’, *αὔω* ‘dry up’, and *αὔξομαι* ‘grow’ illustrate.

6.8.2.1. *ἰαύω*

As we have already seen (§3.7.2), it has sometimes been argued that **-ye/o-* verbs lay behind examples like *ἄχοομαι*, *χροοομαι*, *γεύομαι*, *εὔω*, and *αὔω* from the stems or roots **H₂kows-*, **krows-*, **gews-*, **H₁ews-*, and **H₂ews-* respectively. We have already argued that the survival of the prevocalic diphthong in such cases does not necessitate the reconstruction of a **-wsy-* cluster, but rather owes its survival to analogical pressure from the sigmatic aorist or future forms. However, not all of the potential examples of **-VwsyV-* can be explained away in this fashion.

It may be that *ἰαύω* ‘stay the night’ (Hom. and then in poetic texts) goes back to **iawsyō*, from a zero-grade formation **H₂i-H₂us-ye/o-*, based on the root **H₂wes-*; cf. the Toch.B **-ye/o-* verb *wši-* ‘stay, live’, and with the same root Ved. *vāsati*, Goth. *wisan*, OIr. *foaid*, Hitt. *ḫwiš-* ‘live’, etc. (see LIV² 293–4).

The **-ye/o-* suffix would be phonologically justifiable on the grounds that a simple thematic present such as **H₂i-H₂ews-e/o-* should have yielded **iaō* in Attic-Ionic; cf. *ἄχοή* < **akōā* < **akows-ā*, or Hom. *ῥῶς* < **awsōs* (see Beekes 2010:55 and, for further discussion of this change, §3.7.2). The survival of the prevocalic diphthong cannot realistically be ascribed to analogical pressure from the sigmatic aorist, since the old aor. *ἄεσσα* < **H₂wes-s-m* does not show a prevocalic diphthong. Even though there is an aor. *ἔαυσα* already in Homer, it seems pretty clear that this was formed secondarily on the basis of the present stem rather than serving as the model for the present. So in this instance the survival of the prevocalic diphthong might truly point towards an intervocalic cluster **-wsy-*.

However, the **-ye/o-* verb analysis of *ἰαύω* is not at all certain for various reasons. This verb is attested in Homer and then in lyric portions of tragedy; as Peters (1980:36) pointed out, all instances are dependent on Homer and it would be perfectly consistent to suppose that it was an Aeolicism, the presence of Aeolicisms in Homer being well established. If *ἰαύω* were Aeolic, it would not be necessary to posit an intervocalic **-wsy-* cluster in order to explain the survival of

¹²⁷ We shall discuss the evidence of the *s*-stem denominative *ἰδρῶω* ‘sweat’ and its antonym *ῥιγῶω* ‘freeze’ in §7.1.5.1.

the prevocalic diphthong: Aeol. ἰάω could derive from **iawsō*, since intervocalic **-ws-* yielded a prevocalic diphthong which survived, e.g. Lesb. αῶως ‘dawn’ < **H₂ewsōs* (cf. Hom. ῥῶς, Att. ἔως) and Lesb. παρᾶῶ ‘cheek’ < **par-aws-ā*. If we could be sure that ἰάω was an Aeolicism, then it might not be necessary to consider it further. But it is worth exploring the consequences of other possibilities nevertheless.

If this was a **-ye/o-* verb, then it is still far from clear that a heavy sequence would have preceded the suffix at a sufficiently early date. It might be possible to reconstruct a zero-grade formation **H₂i-H₂us-ye/o-*, in which case the **y* would be preceded by a light sequence in Indo-European terms which only secondarily developed into a heavy sequence within Greek, i.e. **-H₂us-ye/o-* > -αῶω. From this perspective ἰάω might provide valuable evidence regarding the chronology of any potential breakdown in Sievers’ Law, rather than constituting a counterexample as such. However, ‘vocalization’ of the laryngeal in a word-internal position of this kind is unusual; we might have expected **iuō* or **iuiō* < **H₂i-H₂us-ye/o-*, unless the environment following reduplication counts as equivalent to a word-initial environment and if indeed *#H₂u-* yields αῶ-. The essential features of this reconstruction might be maintained, if it were supposed that the reduplication was secondary (see Peters 1980:34–42 for extensive discussion).¹²⁸

This is by no means the only possible interpretation of this formation, and the ambiguous nature of the evidence limits its usefulness. Beekes (2010:574–5) reconstructs a full-grade reduplicated formation **H₂i-H₂ews-ye/o-*, not least because he does not accept the development **#H₂u-* > αῶ-. Such a form would have constituted a counterexample to Sievers’ Law under any formulation and at all stages in its history. The antiquity and status of full-grade **-ye/o-* formations will be considered in a wider context presently. But, in any event, Beekes’ reconstruction seems less than ideal, given that it effectively relies on a schwebeablauting root: **H₂ews-* in ἰάω, αῶλις ‘place for spending the night’ etc. and **H₂wes-* in aor. ἔεσα, Ved. *vásati*, etc. The only Indo-European languages with evidence for a root **H₂ews-* are Greek and Armenian: everywhere else the full-grade root is **H₂wes-* (see Clackson 1994:104–7).¹²⁹

In Greek it would be possible to do without any instance of the root **H₂ews-* by accepting the sound change **#H₂w-* > αῶ-. In Armenian, both full-grade forms are usually supposed in order to account for the contrast between *gom* ‘am, exist’ < **H₂wes-* and *aganim*, aor. *agay* ‘spend the night’ and the noun *awt* ‘sleeping place’, which could involve **H₂ews-*, provided that we accept the sound change **-ws-* > **-g-*, which is plausible but lacks a direct parallel. An alternative to positing a schwebeablauting root would be to adopt Peters’ (1980:40–1) solution, whereby

¹²⁸ We should note the unreduplicated αῶει in Nic.Th.263, 283, but this is more likely to be an epic creation rather than directly representative of an earlier stage of development.

¹²⁹ Beekes (2010:574–5) attempts to avoid reconstructing a root with schwebeablaut by decomposing **H₂ews-/H₂wes-* into two morphemes, i.e. **H₂ew-s-/H₂w-es-*. This is difficult to justify, because the only evidence for a root **H₂ew-* comes from Armenian. All the Greek forms, except ἰαυῖμός ‘sleeping place, bed’, can be derived from a root with final **-s-*. As Clackson (1994:104–7) points out, the initial iota in ἰαυῖμός clearly marks it as a deverbal derivative from ἰάω, and its relatively late date of attestation (Lyc., Call., Hsch.) makes it an unsuitable basis for reconstructing a simpler root **H₂ew-* in Greek. Furthermore the Armenian evidence for a root **aw-* can ultimately come from the root **H₂wes-/H₂ews-* one way or another (see Clackson 1994:106–7).

the whole verbal paradigm and associated derivatives were built from a root **aw-* (> *ag-*), which was back-formed from an aorist or imperfect **H₂wes-t* > **aw-*, or rather, with the augment **e-H₂wes-t* > **aw-* > *ag-* (see Clackson 1994:105).

Given the highly ambiguous nature of the evidence of ἰαύω, with regard to both the suffixation and root vocalism, it will not be possible to make use of it in our enquiry.

6.8.2.2. αὔω

A secondarily derived diphthong may be found in αὔω· ξηραίνω ‘dry up’ (Hdn.Gr.2.132) and possibly also in ἀφαύει ‘dry up’ (Ar.Eq.394). These may go back to **H₂sus-ye/o-*; cf. Ved. *śúṣyati*, OCS *suxъ* with **-ye/o-* presents, and cf. YAv. *haošātaē*, with the same verbal root, and nominal αὔος ‘dry’.

This root would not have acquired a heavy stem until after the loss of inter-vocalic **s*. Nevertheless, it is not clear that the root is useable for our purposes, because we have no guarantee of a **-ye/o-* present in Greek rather than a simple thematic formation < **H₂sus-e/o-*, which ought to give the same result.

6.8.2.3. αὔξομαι

It has sometimes been supposed that there was a **-ye/o-* suffix in αὔξομαι ‘grow’ (Hes., Pi.), i.e. < **H₂uks-ye/o-*, from the root **H₂weks-*; cf. Toch.B *aukṣi-* (with a full-grade vocalism), OAv. *uxšiiēiti*, Ved. *úkṣant-* (see LIV² 288–9 esp. n. 5).¹³⁰

LIV² (*loc. cit.*) supposes that Greek, in common with Indo-Iranian, continues a **-ye/o-* verb, but undergoes a regular loss of **y* after *-ks-*. From the point of view of Greek, it is perfectly conceivable that a cluster **ksy* in the supposed **H₂uks-ye/o-* could have yielded *-ξ-* in αὔξομαι, but there is no positive evidence that a **-ye/o-* present actually lies behind the Greek form. A simple thematic present would yield the same result. We cannot conclude anything from this example; it certainly does not offer evidence for the behaviour of obstruent clusters in relation to Sievers’ Law.

6.8.3. Ambiguities in Root Vowel Length and Its Significance

Epic θείω ‘run’ (perhaps < *d^hew-ye/o-*) is counted as a possible **-ye/o-* present by LIV² (147–8 and n. 2, s.v. **d^hew-*); cf. θέω, fut. θεύσομαι, θοός ‘quick’, Ved. *dhávate*, etc. However, given that forms of θείω are restricted to epic, and the regular form elsewhere is the thematic θέω < *d^hew-e/o-*, it seems more likely that the initial long vowels of θείη and θείειν are metrical phenomena rather than an inheritance (see Schulze 1892:277, Chantraine 1948:102, 346, 492).

It is not clear how to understand the origins of ὀρίνω ‘excite, stir’, Lesb. ὀρίνωω (according to Herodian, though our text of Alcman has ὀρίνω). We might reconstruct a **-ye/o-* present **orin-ye/o-* or a thematized **-nu-* present **orinwe/o-*.

¹³⁰ Ved. *úkṣant-* could be a redactional substitute for **úkṣya-* (see Insler *apud* Jamison 1983:139).

Ultimately, Beekes (2010:1102–3) compares Arm. *ari* ‘stand up’ (impv.) and takes these forms back to **H₃r-i-*, an extended version of the root **H₃er-* ‘rise’ (cf. ὀρνυμι). However, none of this helps us decide whether we have a **-ye/o-* present here or not. Attic could have provided decisive evidence, since a long root vowel in Attic would have pointed to **orin-ye/o-* rather than **orinwe/o-*. But there are no suitable examples to test the idea.

We cannot be sure whether or not to reconstruct a **-ye/o-* present for ἀλείνειν· ἀλείφειν (cod. ἀλινεῖν)¹³¹ ‘anoint the skin with oil’ (cf. Lat. *linō* ‘smear, rub’, *litus*), *pace* Beekes (2010:68–9), because we do not know the length of the vowel in the Greek present stem.

On the other hand, we do know that the root vowel is long in φῶραι ‘grow, become’, cf. Lat. *fīō*, OIr. *biid* < Proto-Celtic **bwiye/o-*, Ved. *bhav-/bhū-*, etc. (LIV² 98–9). The long *ū*-vowel of the stem could speak for a reconstruction **b^huH₂-ye/o-*, but it could equally well have been brought in from any of the other tense stems where long *ū* is absolutely general. Indeed, Beekes (2010:1597–8) supposes that the whole verbal system is built from the intransitive aorist ἔφυν.¹³²

Similarly, τρῶω ‘wear out’ could derive from **truH-ye/o-*; cf. CS *tryjō* (*tryti*) ‘rub’ (LIV² 652–3). But the long *u*-vowel is common elsewhere in the paradigm; in fact the present is not frequently attested and the perfect τέτρυμαι is the most common form. The long vowel could easily have been generalized from the perfect, or the aor. τρῶσαι etc.

The long vowel in κνύω ‘scratch’ might indicate a formation with a **-ye/o-* suffix, i.e. **knuHye/o-*; perhaps compare an extended form of the root in Baltic and Germanic, e.g. Latv. *knūdu*, ON *hnjóða* (see LIV² 366; cf. Seebold 1970:268). However, insofar as the length of the root vowel in Greek was fixed, the present stem might not require special explanation.

There are additional complications in the case of the onomatopoeic verb πτύω ‘spit, spit out’, not least because there would have been a constant potential for remodelling. Also the various cognates do not agree on the nature of the anlaut cluster; cf. Lat. *spuō*, Ved. *ṣṭivati*, Lith. *spiáuju* (*spiáuți*), etc. (see LIV² 583–4 and §3.9.2). LIV²’s reconstruction of **sptyuH-ye/o-* is rather optimistic. Even if all the difficulties could somehow be overcome, the variation in the length of the vowel between πτύω and aor. ἔπτυσσας remains unexplained. A **-ye/o-* suffix is merely possible.

For φῶρω ‘mingle, confuse’, Frisk (1991:179–80) reconstructs **p^hur-ye/o-* to account for the long vowel. However, the etymology of the root is unknown and I am not aware of any early or convincing evidence that the vowel in the root would have been short in the first instance (the late evidence of ἐφύρην (Luc.) notwithstanding).

The etymology of σχύζομαι ‘be angry, be angry with someone’ (Hom.) is obscure and we only have internal evidence for the root shape **skud-*; cf. aor. -σχύσσαιτο (Hom.) and the synonymous σχυδμαίνω (Hom.). Nowhere in Greek is the length of the *υ* vowel clear.

¹³¹ Confirmed in an inscription from Selinous (see Dubois 1995:128 l. 16).

¹³² On φυίω, see Tucker (1990:386).

6.8.4. Peculiarities in Root Vocalism

It is difficult to be sure of the etymology of πάσσω, Att. πάττω ‘sprinkle’ (Ar. etc.); cf. aor. ἔπασσα, fut. πᾶσω, παστός, -ή, -όν ‘sprinkled with salt’. These forms can all go back to a Greek root **pat-*. Our understanding of the structure of the root is complicated considerably by consideration of the Hesychian lemma πῆ καὶ πῆν ἐπὶ τοῦ κατὰπασσε καὶ καταπάσσειν ‘[the forms] πῆ and πῆν [appear] in κατὰπασσε and καταπάσσειν’, and the fourth-century inscription from Epidauros that has the verb ἐπιπῆν φάρμακον ‘sprinkle on drugs’ (IG 4².1 121, l. 119), which recalls Homeric ἐπι...φάρμακα πάσσων ‘sprinkling on drugs’ (Il.5.401).

If this Doric evidence is truly comparable, then this presents a problem for reconstruction, since an alternation between short **a* and Common Greek long **ē* is difficult to understand as an inheritance. LIV² (563–4) compares Lat. *quatiō* ‘shake, toss, hit’, *concutere* ‘shake repeatedly, damage’ (probably by syncope or vowel weakening from the root **kwat-*), and OHG *scutten* ‘shake’, Lith. *kut-* ‘thrive, prosper, recover’, etc., and reconstructs an Indo-European root **(s)kweH₁t-/*(s)kuH₁t-*. If, as LIV² supposes, there was an ancient **-ye/o-* verb from this root, i.e. **(s)kuH₁t-ye/o-*, then this would have constituted a heavy sequence in the root under some analyses of Sievers’ Law. However, the reconstruction of this root faces a considerable number of problems, and most of the attested forms can only be compared in this way if they have been rebuilt by analogy.

The Lithuanian present *kutù* ‘shake’ based on the root **kūt-* would have to constitute a replacement for the expected **kūt-*, based on the root vocalism in the nasal present *kunt-* either by Osthoff’s Law < **(s)künt-* or from **(s)kuH₁-n-t-* (see LIV² 564 n. 3, 4). Lat. *quatiō* would have to be a replacement for the expected **kūt-ye/o-*; LIV² (564 n. 8) supposes that, under the influence of *facio:fēci*, a present *quatiō* was built from an unattested root aor. **k^wēt-* (< **(s)kweH₁t-*). Schrijver (1991:462–3), on the other hand, takes the root **kwat-* as a possible reflex of **(s)kuot-i-*, which would be a reasonable match for OHG *scutten* and the Lithuanian root **kut-*, but would imply that the Greek forms are not related.

The Greek root πῆ < **k^wē-* could have been abstracted from a root aorist: 2nd sg. **k^wē-s* < **k^weH₁t-s* (see LIV² 564 n. 2). However, if this account is accepted, the *a*-vocalism in πάσσω is unexplained, and there is no terribly plausible model for its development.¹³³

This comparison cannot be made unless the *a*-vocalism in Greek and Latin can be explained satisfactorily. De Vaan (2008:504–5) is sceptical of such attempts and prefers to posit a non-Indo-European origin for this word. We cannot use this Greek form to say anything meaningful about Sievers’ Law or any other early process, until its provenance is better understood.

¹³³ LIV² (564 n. 7) offers as a parallel for the *a*-vocalism in the root verbs such as νοῶω ‘dwell, inhabit’ < **nas-ye/o-*, built on a root which may have been remodelled from **as-* < **ns-* after the full-grade **nes-* in νέομαι ‘go, come’ etc. Interference between allomorphs such as **as* and **nes-* is relatively easy to understand, but it is difficult to see why such forms should have influenced the putative **kūt-ye/o-* → **kwat-ye/o-* > πάσσω. The alternative potential model offered to explain the putative replacement of the allomorphs **kwēt-/kūt-* by **kwēt-/kwat-* is ῥηγνύμι and ἔρρηξα beside the secondary zero-grade ῥεράγγην < **wrag-* ← **wrēg-* < **wrH₁g-*. However, this simply begs the question, since it is still unclear how this secondary **ē:ā* ablaut came about. Chantaine’s (1999:971–2) suggestion that ἔπαγγην might be implicated cannot work in dialects other than Attic-Ionic.

6.9. CONCLUSIONS

It should have become clear from this survey that it has been necessary to sift the Greek evidence very carefully. We could only proceed to understand the significance of the evidence of the Greek **-ye/o-* verbs once we had taken account of the continuing productivity of the suffixes which were secondarily abstracted from the reflexes of **-ye/o-* verbs, once we had identified as far as possible the effects of analogical formation, and once we had set aside examples that had been rendered ambiguous for our purposes by phonological changes within the history of Greek. We are now in a position to assess the evidence of ancient **-ye/o-* verbs in Greek, insofar as it relates to the question of inherited patterns of semivowel syllabification.

Greek *-ye/o- Verbs

In this chapter we will examine a considerable proportion of the Greek evidence for *-ye/o- verbs, with a view to establishing the kinds of sequences that could precede the suffix; for these purposes, it will be necessary to concentrate on the examples that had a consonant-final stem at some stage in their history. This should enable us to establish whether the *-ye/o- suffix was invariant because it was insensitive to Sievers' Law, or whether it was preceded exclusively by light sequences at a sufficiently early stage. In order to seek some kind of deeper explanation for the behaviour of the suffix, it will also be essential to try to establish its morphotactic properties in various functions: denominative, primary, and deverbative.

It will prove particularly important to provide an accurate assessment of the distribution, antiquity, and level of support for primary full-grade *-ye/o- formations. As we have already suggested, a great many common Indo-European full-grade root shapes would have constituted a heavy sequence, and if a fully fledged full-grade *-ye/o- formation was available in Indo-European and early Greek, then it would be difficult to see how Sievers' Law could possibly be compatible with the invariance of the *-ye/o- verbal suffix. With this in mind, we should pay close attention to the amount of solid evidence for this formation among the Greek *-ye/o- verbs.

It may appear, at times, that a double standard is being employed with regard to the adequacy of various categories of evidence. This is certainly true, and there are very good reasons for such an approach. On the one hand, we will pursue an *inclusive* approach when considering the interaction of the Greek evidence with the predictions of various formulations of Sievers' Law. The intention here is not to suggest that every putative Greek *-ye/o- verb with a light sequence before the *-ye/o- suffix can be considered ancient and therefore as offering an additional measure of support for Sievers' Law; the ongoing productivity of the formation would make any such claim nonsensical. Rather, this approach enables us to consider the evidential value of as many potential *counterexamples* to Sievers' Law as possible, thus providing the sternest test possible of the proposition that semivowel syllabicity alternation was once rule-governed. On the other hand, when assessing the morphotactic properties of the verbal categories inherited from Indo-European, we will be far more discriminating with regard to the quality of the evidence which can be accepted and its potential antiquity. This is because when we make claims about the antiquity, distribution, and morphological properties of a verbal category, such as the full-grade *-ye/o- formation

in Indo-European, we are making existential claims which require a higher level of justification.

During the course of these investigations a number of important points will emerge regarding the syntactic and semantic properties of inherited **-ye/o-* formations both denominative and primary; these will enable us to induce a certain amount of chronological stratification in some of the material, and to identify some examples as late which might otherwise have been taken as representative of an early state of affairs. Indeed, this approach will lead us to identify some apparent exceptions to Sievers' Law as comparatively late formations.

7.1. DENOMINATIVE FORMATIONS

7.1.1. Introduction

The status of the denominative **-ye/o-* verbs is something of a special case. On the one hand, it is practically impossible to reliably attribute any of the denominatives attested in Greek to Indo-European itself, because there is a striking lack of the necessary word equations (see Sütterlin 1906:494). On the other hand, it seems rather peremptory to discard all the information which they might provide, given that **-ye/o-* denominatives were formed in every branch of Indo-European and the antiquity of the formation itself cannot be in any doubt.

Therefore it seems best to include denominative formations in our enquiry, but to attempt a chronological understanding of the data, so that we do not adduce anachronistic counterexamples, nor claim a greater degree of support for any given position than can reasonably be supposed.

To this end we will not only produce a roster of denominative verbs, but we will also consider the morphological principles according to which **-ye/o-* denominatives could be formed, and the syntax and semantics of the resulting formations.

A discussion of syntax and semantics seems totally out of place in a study that is primarily concerned with phonology. But it will become apparent that there are important semantic and syntactic constraints that apply to denominative **-ye/o-* verbs and that do not apply to later formations (such as *-iζε/o-* and *-αζε/o-* verbs and certain demonstrably analogical formations). The proper characterization of the syntactic and semantic properties of clear-cut examples of **-ye/o-* denominatives will allow us to induce some measure of chronological stratification in the evidence, thus allowing us to identify certain formations as being late innovations rather than anything ancient. Furthermore, some aspects of the semantic and syntactic observations which will be developed here will also have a wider application to the evidence of the primary **-ye/o-* verbs. So we will consider semantics and syntax as an indirect means of achieving a partial understanding of chronology, which will serve us well throughout this investigation.

We will begin by considering in a broad fashion the morphological characteristics of **-ye/o-* denominatives, without any attempt to produce an exhaustive set of examples. We will then proceed through the evidence in a more systematic way, dividing the examples according to the type of base nominal from which they are

formed, firstly dealing with denominatives from adjectives, denominatives from abstract nouns, those from appellatives, and finally forms built from concrete nouns.

7.1.2. Delimiting the Evidence

We find several different patterns of derivation among the **-ye/o-* denominatives. Not all categories are equally relevant to our enquiry. For example, from nominal stems in **-ā-*, **-i-*, or **-u-* the result was almost invariably a denominative verb in **-ā-ye/o-* (> **-āō* → -ᾶω), **-i-ye/o-* (> -ίω without any trace of a converse of Sievers' Law; see §3.5.3), or **-u-ye/o-* (> -ύω). There is no doubt at all that we would expect to find **y* rather than **i* between two vowels in Indo-European and later in Greek. Such examples are not instructive for the crucial environments where there is disagreement about the expected outcome.

Therefore it is more important to concentrate on examples built from consonant-stem nominal bases. In some types the **-ye/o-* suffix is simply added to the stem of the base nominal without any changes. In other cases there is a modification of the stem found in the base. Where there is modification it almost always takes one of two forms, using the zero-grade form of the nominal stem (where the base nominal is athematic) or deleting the thematic vowel (if the base nominal is thematic).

7.1.3. The Zero-grade Type

Many denominative verbs are based on a zero-grade form of the corresponding nominal stem, regardless of whether the base nominal itself exhibits ablaut anywhere in the paradigm, e.g.:

ποιμαίνω 'act as a herdsman' (Hom., Hes., E., etc.) < **poyman-yō* < **poymn̥-yō*
 ← ablauting ποιμήν (gen. ποιμένος) 'herdsman';

μελεδαίνω 'care for' (Archil., Thgn., etc.) < **meledan-yō* < **meledn̥-yō* ← non-ablauting μελεδών 'care, sorrow' (*h.Hom.*, Thgn.).

In some cases the denominative verb preserves a more archaic form of the nominal stem, e.g.

πημαίνω 'inflict distress' (Hom.) < **pēman-yō* < **pēm̥n̥-yō* ← πῆμα (gen. πήματος) 'distress, anguish' (Hom.).

Here the verb preserves the ancient nasal stem rather than reflecting the innovative dental stem seen in the base noun. We can draw a contrast with the clearly later development of classes of verbs such as αἰμάσσω 'make bloody' (aor. αἵμαξα) beside αἷμα, -ατος 'blood' (Hom. etc.) and ὀνομάζω 'call or address by name' (aor. ὀνόμασα) beside ὄνομα 'name, fame'.

Zero-grade formation is found with great regularity among resonant-final stems, but it is not exclusive to this class:

βλίττω ‘cut out the comb of bees, rob someone of honey’ (Arist.) < **mlit-yō* ← μέλϊ, -τος ‘honey’;¹

ἱμάσσω ‘flog’ (Hom.) < **himat-yō* < **himnt-yō* ← ἱμάς, -άντος ‘leather strap, etc.’ (Hom.).²

This zero-grade pattern gives every appearance of being an archaism, even if none of the verbs exhibiting it can be shown to be inherited from Indo-European, since it is reminiscent of the behaviour of the great majority of demonstrably inherited primary *-ye/o- verbs (see §7.2.1). Furthermore, it seems to be paralleled in an unproductive Vedic type; we find *vr̥ṣāyāte* ‘act like a bull’ ← **vr̥ṣayāte* < **vr̥ṣn-yé-toi* (see Tucker 1988:109).

7.1.3.1. Phonological Consequences

This morphological patterning carries with it some fairly obvious phonological consequences. The examples of stop-final bases exhibiting this pattern are rare, but insofar as a zero-grade formation is involved, it is easy to see why light sequences emerge in the examples which we do find.

When a resonant-final stem is involved, the regular rules of syllabification governing the early behaviour of resonants in such a phonological context (i.e. between two potentially non-syllabic segments: see Chapter 3, n. 39) usually ensure that there will never be a heavy sequence preceding the *-ye/o- suffix: the stem to which the suffix is added will end in a syllabic resonant, i.e. *-C(-)R₀-ye/o-.

7.1.3.2. Phonological Anomalies

There are occasions when we find unexpected phonological outcomes. As we have already discussed (§3.5.1.3), ἐλαύνω ‘drive, push’ (Hom. etc.) is likely to be a denominative **elawn-ye/o-* based on an unattested *r/n*-stem noun **ela-wr*, **ela-wn-* built from a verbal root which—if sufficiently ancient—could go back to **H₁elH₂-* (for the root shape, cf. ἐλάω ‘set in motion’ and aor. ἤλασα). The failure to find the expected vocalization *-C₀RyV- makes it probable, in my view, that ἐλαύνω is a relatively late development: just like the development of secondary *y in examples such as ἄρωρυα < **arowrya*, the formation of **elawn-yō* seems to post-date the period in which resonants automatically vocalized between consonants.

¹ For the word-initial sound change, see Lejeune (1972:154–5). Kloekhorst (2008:580–1) suggests that Hitt. *ma-li-it-t-* may be interpreted as a spelling for the same zero-grade stem /*mlit-*/.

² This analysis is preferable to reconstructing **himant-ye/o-* (which incidentally would be a potential counterexample to Sievers’ Law), because we would have expected this to develop into **himāsō*, cf. **pant-ya* > πᾶσα. Nor is ἱμάσσω likely to be analogical, because the rest of the paradigm is also based on a stem **himāt-* < **himnt-* rather than **himant-*; cf. aor. ἱμάσσα (not **himāsa* < **simansa* < **simant-s-a*). It is difficult to see how this short ᾱ could have arisen by any analogical means. It is explained if we accept that ἱμάσσω is an example of a denominative *-ye/o- verb built from the zero-grade stem **simnt-yō*. From here a sigmatic aor. **simnt-s-a* > ἱμάσσα could have been created. For the root, cf. Skt *sināti* ‘bind’, Lat. *saeta*, and Greek ἱμονιά ‘well rope’ (Ar.Ec.351 etc.), ἱμάιος, -ης, -ον ‘for drawing water’ [ῖ] (Call.Hec.1.4.12) but χαθῖμάω ‘let down by a rope’ (Ar.V.379 etc.). For a discussion of the Indo-European formations, see Beekes (2010:589–90).

In such a case, we would not be inclined to take too seriously the fact that **elawnyō* appears to violate Sievers' Law, since even if we were fully committed to the notion that Greek inherited Sievers' Law from Indo-European, we would probably expect it to have broken down by that stage.

7.1.4. Thematic Vowel Deletion

Denominatives formed from thematic nominal stems exhibit three different developments. We find a great many verbs in -έω and -όω, e.g. οἰκέω 'inhabit' beside οἶκος 'abode' and οἰνός 'make drunk' beside οἶνος 'wine' (see Tucker 1990 *passim*). Regardless of the level of antiquity which can be claimed for such formations, insofar as they inevitably lead to a derived verb where the suffix is preceded by a vowel, they are not especially interesting from the point of view of the behaviour of the semivowel: *-ye/o- and not *-iye/o- would always be the expected outcome on anyone's analysis.

A more archaic method of formation seems to be reflected in *-ye/o- verbs exhibiting *thematic vowel deletion*. In such verbs the *-ye/o- suffix displaces the thematic vowel of the base. Hence, the verb formed from ἄγγελος is not **an̄geleō* < **an̄gel-e-yō*, but ἄγγελλω 'act as messenger' < **an̄gel-yō*.

This type of derivation does not exhibit any change in the stem beyond the loss of the thematic vowel. So the *-ye/o- verbs built in this way do not attach to a zero-grade stem (unless the base is already a zero-grade form). The noun ἱμερός 'desire, longing' forms the verb ἱμεῖρω 'desire', and not **himaíró* from a putative zero-grade **himr̥-yē/o-*, nor indeed **himereō* < **himer-e-yō*.³ The verb καθαίρω 'make pure' < **kat^har-yō* looks as though it is built from a zero-grade stem, but this is only because the base adjective καθαρός 'pure' has the stem *kat^har-* once the thematic vowel has been removed.⁴

Once again, this type of formation is particularly common among the stems that are resonant-final (once the thematic vowel has been deleted). But there are plenty of other examples, e.g. φαρμάσσω 'treat using φάρμακα' from φάρμακον 'drug (healing or harmful)', πυρέσσω 'be feverish, fall ill of fever' from πυρετός 'fiery heat, fever', μειλίσσω 'make mild, soothe' from μείλιχος, -ον 'gentle, kind', χυάλεπτο 'oppress, crush' from χυάλεπος, -ή, -όν 'difficult, hard to bear', μαλάσσω 'make soft' from μαλαχός 'soft' (and μαλθάσσω 'make soft' from μαλθαχός 'soft').

This pattern of thematic vowel deletion is also found in Avestan and seems to represent the oldest state of affairs there (see Tucker 2004:558–60). We shall

³ The etymology of ἱμερός and ἱμεῖρω has attracted a number of suggestions. It might be assumed that the noun was back-formed from **si-smer-yē/o-*, which was in turn derived from an original reduplicated **si-smer-e/o-*; cf. Av. *hi-šmarant-* 'well conducted'; Ved. *smārati* 'think about, lust'. But Weiss (1998:47ff.) argues convincingly that this explanation cannot be correct, since the supposed noun **sismeros* ought to yield **himmeros* in Aeolic, yet we find ἱμερός and its derivatives frequently in Sappho and Alcaeus, without any sign of a geminated nasal. Under Weiss's analysis, ἱμεῖρω is a denominative *-ye/o- verb from a noun **siH₂-mer-os*, which is derived from a noun in *-mer-/men-, ultimately containing a metathesized form of the root **seH₂i-* 'bind'; cf. Ved. *syāti*, Hitt. *išhai-*.

⁴ The etymology of καθαρός itself is unclear; see Chantraine (1999:478–9) and Frisk (1973:752–3) with literature. Peters (1993:95ff.) attempts to connect Ved. *śithirā-* 'loose', reconstructing **ḱrtH₂-ro-*, with dissimilatory loss of **r* in both languages.

see that this type in Greek exhibits exactly the same semantic patterns as the ablauting denominative type. This may lend support to the idea that both types are equally old.

7.1.4.1. *Phonological Consequences*

The deletion of the thematic vowel potentially involves bringing phonological sequences of every possible kind into contact with the *-ye/o- suffix, and, as we shall see presently, a number of counterexamples to Sievers' Law can be found that have been formed in this way.

7.1.4.2. *Phonological Anomalies*

On occasion the deletion of the thematic vowel appears to yield unexpected phonological outcomes. Schwyzler (1953:723) supposed that the aorist form ἔχραισμε 'be of use, promote' (Hom. etc.) was originally the imperfect of a *-ye/o- denominative formation *e-k^hray-sm-ye/o- (based on an unattested *k^hray-smo-s), which was subsequently reanalysed as an aorist. Finding the reflex of *k^hray(s)sm-ye/o- rather than *k^hray(s)sm-ye/o- might be explicable if we assumed that it was a comparatively late formation. However, before accepting such a conclusion, it is worth bearing in mind that this would be a unique instance among the denominatives of the reanalysis of an imperfect as an aorist. The reality is that the etymology and history of ἔχραισμε are obscure.

An even more perplexing development is presented by οἰκτῖρω 'pity, commiserate' (Hom.), Aeol. οἰκτῖρω (Hdn.Gr.). It is usually supposed that this verb is derived directly from οἰκτρός 'woeful, deplorable', with Attic οἰκτέρω and οἰκτεῖρω probably being secondary innovations. Under this analysis it has been supposed that *oyktr̥-ye/o- should be reconstructed and that an *i*-coloured reduced vowel or schwa secundum developed to break up the consonant cluster (see e.g. Schwyzler 1953:352). If a form *oyktr̥-ye/o- existed at a sufficiently early stage, and depending on the chronology of the putative anaptyxis, we would presumably wish to count such a form as a counterexample to Sievers' Law.

However, a reconstruction *oyktr̥-ye/o- goes against everything that we have observed about the syllabification of the most ancient *-CRY- clusters: all other evidence would lead us to expect *oyktr̥-ye/o- yielding *oyktairō. Furthermore, the supposed development of οἰκτῖρω from *oyktr̥-ye/o- also goes against what we know about the treatment of secondary *-CR̥y- clusters: we do not usually observe the development of an anaptyctic vowel before the resonant; we either see it after the resonant, e.g. in πότνια 'mistress' (< *potn-ya < *potniH₂), or we fail to find any anaptyxis, e.g. ἄρουρα (< *arowrya < *arowr-ya < *H₂erH₃-wr-)—see §3.5.1.2.

We could simply argue that οἰκτῖρω constitutes evidence for yet another phonological development of a *-CRY- cluster, but this solution is ad hoc: we find no parallels for this treatment among the *-ye/o- verbs, or indeed in any of the morphological categories we have looked at in detail.

There may be reasons for doubting the antiquity of οἰκτῖρω in any case. If it is, by any chance, true that οἰκτός 'lamentation, pity' was back-formed from οἷζω

‘wail, be in fear’, then the whole system (including οἰκτιρίζω) would have to be a relatively late innovation, given that οἴζω itself seems to be a -ζε/o- denominative from the interjection οἴ, and it seems highly likely, on general grounds, that the abstraction of -ζε/o- as an independent suffix post-dates palatalization. On this basis it seems unlikely that οἰκτιρίζω can inform us about the early behaviour of semivowels or syllabification in Greek or Indo-European.

7.1.5. Categories without Deletion or Reduction

There are a number of categories of denominative *-ye/o- verbs that either exhibit the same stem form as the base noun or adjective, or at least fail to show a ‘reduced’ form of the stem. I shall not discuss vowel-stem verbs here for the reasons already mentioned.⁵ Instead we shall focus on the other consonant-final stem types.

7.1.5.1. Denominatives from *s*-stems

We almost always find denominatives from *s*-stems with a consistent full-grade vocalism, e.g. Hom. τελεῖω (and τελέω) < *teles-yō beside τέλος.

We find no clear examples of a zero-grade formation from such nominal stems.⁶ This may have been an inherited characteristic, for we find a full-grade stem in parallel formations in Indo-Iranian. There is a prevalence of such full-grade *s*-stem denominatives in Vedic and Avestan, e.g. Ved. *namasyāmas* ‘we reverence’ from *nāmas-* (n.) ‘reverence’ and OAv. *nəmaxiiāmahī* ‘we reverence’ from *nəmah-* (n.) ‘homage, reverence’ (see Tucker 1988:103–4, 2004:548).

The sequences preceding the suffix are almost without exception light, but as we have already discussed at some length, the phonological ambiguities involved in the development of *-s(i)y- sequences mean that the contribution of forms such as this can only be minimal when it comes to understanding the behaviour of semivowel syllabification (see §§3.7.1 and 6.8.2). Nevertheless, they can play a role more generally in our understanding of the formational principles of *-ye/o- denominatives.

It seems that not quite all derivatives from *s*-stems have a short full-grade vowel in the stem. We find ἰδρώω ‘sweat (from toil)’ (Hom.) based on the *s*-stem ἰδρώς ‘sweat’ (cf. dat. ἰδρῶϊ, acc. ἰδρῶν), built at a stage before the noun went on to develop an innovative *t*-stem in the oblique cases, e.g. gen. ἰδρῶτος. Conceivably, ἰδρώω goes back to *swidr-ōs-ye/o-, which would constitute a counterexample to Sievers’ Law.

However, this would be a rather strange conclusion on both phonological and morphological grounds. Although there are no precise phonological parallels, it is not clear that we would expect *swidr-r-ōs-ye/o- to give ἰδρώω, as opposed to showing some trace of the semivowel; *-s(i)y- after a short *o vowel yields an overt diphthong; cf. γελῶος ‘laughable’ < *gelos-(i)ye/o- beside γέλως, or αἰδοῖος < *aydos-(i)yo-s ‘inspiring αἰδώς’ or gen. sg. -οιο < *-osyo. It should also be noted

⁵ On these formations, see Tucker (1990).

⁶ On the ambiguity of the evidence offered by γελάω, see §6.8.1.6.

that **swidr-ōs-ye/o-* would be almost isolated in morphological terms among the denominatives from *s*-stems; we might not have expected the stem of ἰδρώς to remain invariant when the **-ye/o-* suffix was added, if Hom. αἰδέομαι ‘hold back, revere’ < **aydes-ye/o-* beside *s*-stem αἰδώς is any kind of reliable guide.

The morphologically complex nature of ἰδρώς requires comment. It seems to be an *s*-stem (cf. Latin *sūdor*), but unlike the Latin formation the Greek *s*-stem is, in turn, built on an *r*-stem **swidr-r-*; cf. Arm. *k’irtn* ‘sweat’, Latv. *sviēdri*, Alb. *dīrsē*. It is clear that ἰδρώς belongs to an archaic and obsolete inflectional type, but we may wonder whether there had been interference between two competing formations within the history of Greek. This might give us reason to doubt that the derived denominative ἰδρώ can have the necessary degree of antiquity to play a role in discussions about Sievers’ Law.

In any case, it would be easy to see how a form like this might have been created by analogy without the involvement of the **-ye/o-* suffix, e.g. τελεσ- : τελέω :: ἰδρωσ- : X, where X = ἰδρώ (insofar as the stems τελεσ- and ἰδρωσ- remained available in the grammar after the loss of intervocalic **s* in the surface phonology).

It may be that ῥιγώ ‘freeze’ owes its origin to the antonym ἰδρώ rather than going back to **srīgōs-ye/o-*. It is first attested in Homer as a future infinitive ῥιγώσμεν and competes with a formation in -όω and -έω. Its antiquity is suspect.

7.1.5.2. Denominatives from Nouns in -ευσ

We find a class of denominatives built from nouns in -ευσ. These may be as old as Mycenaean, for we find [*qa-]*šī-re-wi-jo-te (PY Aq 64), which may represent [*g^wasilēw-(i)jontes*] beside *qa-si-re-u* (e.g. PY Jn 431); cf. βασιλεύς.

In alphabetic Greek we generally find corresponding denominatives in -εύω, but it is clear that these could not be the regular outcome of verbs incorporating a sequence **-w-yō* or **-w-iyō*. Only Elean regularly shows the expected development; for example, we find Elean λατρεύω ‘serve (for wages), serve a god’ from λατρεύς ‘servant’ (Lyc.); see Minon (2007:359, 396–7).⁷ Other dialects seem to have rebuilt verbs in -ευσ on the basis of the aorist and future forms in -ευσ- (see e.g. Risch 1974:332, Chantraine 1948:367), giving e.g. βασιλεύω and λατρεύω.

There is no evidence that such verbs were ever built from a zero-grade stem or even that a zero-grade stem form existed at an early stage. It seems probable that, if built at a sufficiently early stage, they would have been formed from the same **-ēw-* stem as all other derivatives from this type of noun (see Ventris and Chadwick 1973:176, but cf. Risch 1974:332 n. 80, who reconstructs verbs with *-ew-yō*). We cannot tell whether the Mycenaean evidence represents *g^wasilēw-yō*, *g^wasilēw-iyō*, *g^wasilēw-yō*, or *g^wasilēw-iyō*.⁸

The Elean verbs in -ειω should represent forms with a short stem vowel, because we find a later spelling -αιω after an *r*, which would only be the case if the vowel were short (see Buck 1955:23–4, 125). The question naturally arises whether this short vowel might have arisen by Osthoff’s Law, or whether it was short all

⁷ We should note that it would be equally possible to suppose that λατρεύω was built directly from λάτρον ‘payment, hire’ with the -ευσ/-ειω suffix.

⁸ On the difficulties of establishing the significance of Mycenaean orthographical practice in such sequences, see §3.7.3.

along. If it shortened, then this would suggest a reconstruction **-ēw-ye/o-* rather than **-ēw-īye/o-*, and examples from this category would constitute exceptions to Sievers' Law. However, as we have already noted, it has been argued, albeit on extremely slim evidence, that a sequence **-wy-* was 'immune' to the effects of Osthoff's Law (see §3.7.3), perhaps because the sequence **-wy-* had already developed into **-yy-* at the relevant stage. If this was the case, then we would be forced to assume that Elean βασιλείω was analogically (re)built from shortened forms of the base noun: βασιλεύς and βασιλεῦσι. Indeed, regardless of our belief in the applicability of Osthoff's Law to such sequences, given that such an analogical route exists, we can still regard the evidence for a stage such as *g^wasilēw-yō* as fairly weak.

In any event, the usefulness of any evidence from this category must be tempered by the observation that this class of denominative verbs cannot be any older than the nominal category it is formed from. There has been much debate about the antiquity of nouns in -εύς, but it seems likely that the type is confined to Greek and is not inherited. It is debatable whether we should expect Sievers' Law to apply here, even if it was inherited from Indo-European in the first place.

7.1.5.3. Stop-final Stems

In addition to the denominatives in which **-ye/o-* is added to a stop-final stem owing to thematic vowel deletion, Greek also has a category of denominative verbs built from athematic stop-final stems, e.g. φυλάσσω 'keep watch; guard' < **p^hulak-ye/o-* ← φύλαξ, gen. φύλακος 'watcher, guard, sentinel'; χαράσσω 'make pointed, sharpen; notch; scratch' < **k^harak-ye/o-* ← χάραξ, -ᾶκος 'pointed stake, vine prop, pale'; ἐρίζω 'strive, challenge' < **erid-yō* ← ἔρις, gen. -ίδος 'strife, rivalry'.

It is possible that instances of **-ye/o-* being added to stop-final stems may constitute some kind of innovation, since Vedic shows no such proliferation: in the Rigveda we find only two examples: *bhiṣajyá-* 'heal' and *iśudhya-* 'implore'.

The vast majority of such verbs do not exhibit anything resembling a full-grade vocalism in the syllable immediately preceding the **-ye/o-* suffix; e.g. we find χορύσσω 'furnish with a helmet; equip; make crested' beside χόρυς, -ῦθος (f.) 'helmet, scalp of a lion'. But it is not possible to categorize such verbs as having zero-grade stems in any principled fashion, because their stems do not exhibit ablaut alternations.

In the categories of stop-final stems and thematic stems that became stop-final through thematic vowel deletion, we would have expected to find evidence for **-īye/o-* verbs if they had existed. But we do not find such evidence. Therefore, it will be crucial to understand in detail the evidence contributed by such verbs.

7.1.6. Approaches to the Data

In the next few sections we will discuss various categories of denominative verbs, organized in terms of the nature of the base from which the verb is built.⁹ We

⁹ This approach makes it rather hard to accommodate forms where the morphological category of the base is unclear, because the base is not actually attested. For example, πλημύρω 'overflow, make flow' (Archil., B., Call.) is formed from the same stem as πλημυρίς, -ίδος 'flood, sea-rise' (Hom.

have already seen that vowel stems, *s*-stems, and *-ēw- stems are unsuitable for our purposes, and we shall not discuss these any further.

In the parts of the following analysis that deal with the semantic patterns in denominative formation, we will only take into account verbal meanings which are attested prior to the Hellenistic period. It is not possible or even desirable to account for all potential subsequent developments here.

7.1.7. Denominatives from Adjectives

If we take for granted the range of morphological types identified thus far, and if we allow ourselves to take these modalities of formation as being more or less equivalent for now, it is possible to identify two broad and distinctive patterns of deadjectival denominative formation using the *-ye/o- suffix. These patterns have a semantic and syntactic basis and can ultimately be understood in terms of the argument structure of the base nominal from which the verb is formed. An understanding of these patterns will form the basis for a partial understanding of the chronology of these and other related formations. We find, on the one hand, a class of verbs that, when used in the active voice, are obligatorily transitive and bear a factitive/causative relationship to their nominal base ('make something X' where 'X' is the meaning of the base adjective), and, on the other hand, an optionally intransitive predicative class ('be X'), where the verbal meaning is equivalent to predicating the base adjective of the verbal subject.

7.1.7.1. Factitive/Causative Verbs

Denominatives in *-ye/o- form a causative or factitive relationship with their base when the verbal suffix is added to adjectives which presuppose a *theme* argument rather than *agent* or *experiencer*. In other words, if a Greek adjective implies that the noun with which it is construed is a *theme* rather than an *agent* or *experiencer*, then the corresponding derived denominative verb will be factitive/causative, and this *theme* role of the base adjective will be realized as the semantic role of verbal object.

We will consider adjectives as having a *theme* argument structure if they tend to denote properties which one has without the need to actively do, think, or feel anything, e.g. 'fat', 'elaborate', 'soft', 'twisted or curved', 'red', 'ripe', 'cunningly wrought', 'round', 'pure', 'honoured'. Such adjectives contrast strongly with adjectives with an *agent* or *experiencer* argument such as 'talkative', 'cruel', 'gentle'. For our purposes, no distinction will be drawn between *themes* and *patients*.

It is absolutely clear that πιάίνω 'make something fat' (Pi., A., etc.) bears a *factitive* or *causative* relation to its base adjective πίων 'fat' (Hom. etc.), e.g.:

ἡ γῆ...
τίκτουςα ποίαν τὰμὰ πιάίνει βοτά.

etc.). But there are no other examples of *-ye/o- denominatives formed by replacing a nominal suffix -ιδ-. It seems very likely, therefore, that the original base form has been lost. The base of ἀσχαλλῶ 'be distressed, grieved' (Hom. etc.) is unattested. There have been attempts to reconstruct the underlying nominal from privative α-, the root of σῃν 'have', and a suffix -αλο-. The scepticism of Beekes (2010:160) seems justified. But in any event, the lack of attested forms makes it difficult to provide a meaningful analysis.

‘The Earth ... giving forth grass fattens my cattle’ (E.Cyc.332–3).

ἔγωγε μὲν ὃν τήνδε πιανῶ¹⁰ χθόνα

‘I myself will fatten this land’ (A.Th.587).

Clearly, when used in the medio-passive, the meaning is different, ‘become fat’, and in order to compare like with like it will be necessary to focus here on active usages.¹¹

Similarly, ποικίλλω ‘elaborate’ (Hom. etc.) bears a *factive* or *causative* relation to ποικίλος ‘multicoloured, manifold’ (Hom. etc.), e.g.:

ἐν δὲ χορὸν ποίκιλλε

‘And he wrought a dancing place on it’ (i.e. on the shield of Achilles, Il.18.590).

Further examples of this pattern include:

μαλάσσω ‘make soft’ (Pi., Hp., Ar., etc.), built from μαλακός ‘soft’ (Hom. etc.);
μαλθάσσω ‘make soft, soothe’ (A., E., etc.), built from μαλθακός ‘soft’ (Hom. etc.);

ἐλίσσω ‘make something turn round, roll something’ (tr.), (Hom. etc., e.g. used in Il.23.309 of turning a chariot round the doubling post), built from ἐλιξ, -κος ‘twisted, curved’;¹²

φοινίσσω ‘make red’ (tr.) (E. etc.), built from φοῖνιξ, -ικος, ‘crimson, purple, etc.’;¹³

πεπαίνω ‘make ripe’ (Ar., X., E., etc.), built from πέπων ‘ripe’ (Hom. etc.; note that the sense is metaphorical in Homer, ‘kind’);

δαιδάλλω ‘work cunningly, embellish’ (Hom., Pi., etc., active only in present and imperfect), built from δαίδαλος ‘cunningly wrought, spotted’ (Pi., A., a personal name in Hom.; Homer also uses δαίδαλον as a neuter substantive, ‘cunning work’);

στρογγύλλω ‘round off, make round’ (Alexis, Nic.), built from στρογγύλος ‘round, spherical, curved’ (Ar., X., Hp., etc.);

¹⁰ The form πιανῶ is future tense and did not have the *-ye/o- present stem suffix. The various tense stems of such denominative verbs always seem to exhibit the same semantic relationship to their base as the present stem built with the suffix *-ye/o-. The explanation for this probably lies in the history of these verbs. It is generally accepted that, in the first instance, only present stem denominatives were created. Other tense stems were constructed analogically on the basis of the present stem.

¹¹ This approach means that verbs like καμπύλλομαι ‘bend’ (Hp.) ← καμπύλος ‘bent, crooked’ (Hom., Pi., Hp., A.), which only occurs in the middle and passive, will not figure prominently in this section. The semantics of its middle and passive forms are not necessarily inconsistent with the way in which πιαίνω behaves. But clearly it does not show factitive/causative semantics. For all that, it is no less relevant as an example of a *-ye/o- denominative. It is worth noting that medio-passive morphology is no guarantee of inchoative meaning, for we find Hom. μγάζόμενος ‘mix’ built from μγάζ, -άδος ‘mixed’ (e.g. E.Ba.18); cf. μίγα adv. ‘mixed, blent with’ (e.g. Pi.P.4.113).

¹² This example is slightly ambiguous because the verb could be derived from ἐλιξ in its use as a noun denoting anything which assumes a spiral shape. However, in the light of how denominatives from nouns seem to function, it is more straightforward to assume that this verbal usage is deadjectival.

¹³ For reservations about the value of the evidence provided by this example, see §7.1.9.1.

καθαίρω ‘purify, cleanse’ (Hom. etc.), built from καθαρός ‘pure’ (Hom. etc.);¹⁴
 γεραίρω ‘honour, make honoured/majestic’ (Hom. etc.), built from γεραρός
 ‘honoured, majestic’ (Hom. etc.);

αἰόλλω ‘make something shift rapidly; change something’s colour’ (Hom., Hes.,
 Nic.), built from αἰόλος ‘changeable; wriggling; glittering, sheeny or stained’
 (Hom. etc.).¹⁵

7.1.7.2. Predicative Verbs

Denominatives in *-ye/o- form a predicative relationship with their base when the verbal suffix is added to adjectives which presuppose an *agent* or *experiencer*, rather than a *theme* argument. In other words, if a Greek adjective implies that the noun with which it is construed is an *agent* or *experiencer*, then the corresponding derived denominative verb will be predicative, and this *agent* or *experiencer* role of the base adjective will be realized as the semantic role of verbal subject.

Adjectives with an *agent* or *experiencer* argument structure tend to denote properties that involve mental or physical participation, e.g. ‘talkative’, ‘praying’, ‘reckless’, ‘chattering/persuasive’, ‘wailing’, ‘whining’, ‘cruel’, ‘gentle’, and ‘robbing, rapacious’. These contrast strongly with adjectives with a *theme* argument such as ‘fat’, ‘elaborate’, ‘soft’.

A verb like στωμύλλω ‘be talkative’ (Ar.) (← στωμύλος ‘talkative’, Ar., Pl., Theoc., etc.) shows a meaning equivalent to predicating the base adjective of the verbal subject:

ἀλκυόνες αἱ παρ’ ἀνάνοις θαλάσσης κύμασι στωμύλλετε

‘O kingfishers, who chatter by the sea’s everflowing waves’ (Ar.*Ra*.1310).

Verbs of this type may be used intransitively, though this is not obligatory in all examples, e.g. γυναικὸς ὦν δούλευμα μὴ κώτιλλέ με ‘Since you are a woman’s slave, do not cajole me’ (S.*Ant*.756).

¹⁴ Note that a secondary sense has been claimed for καθαρός: ‘purifying’ in Pi.O.1.26 and Theoc.24.96. If correct, this would affect the analysis to an extent, but the example could still be accommodated.

¹⁵ This example is complex, but can fit into the overall pattern. The base adjective almost always has an obvious *theme* argument: ‘changeable’ (of ἡμέραι in Arist.Pr.941^b 24) or ‘unreliable’ (of ψεῦδος in Pi.N.8.25), having a ‘glittering’, ‘sheeny’, or ‘stained’ appearance when applied to armour (e.g. Il.5.295), a snake (e.g. S.Tr.11), or a body (σάρξ in S.Ph.1157) respectively. It may denote a propensity to wiggle or move rapidly, typically when applied to lower forms of life, e.g. of εὐλαί ‘worms’ (Il.22.509) or of an οἶστρος ‘gadfly’ (Od.22.300)—this sort of meaning is by no means incompatible with a *theme* interpretation. Only on one occasion is it used of a higher form of life, a horse at Il.19.404; conceivably this may represent a late extension of the adjective’s meaning.

If the adjective has a *theme* argument then we would expect the corresponding active verb to be causative/factive. This is indeed the case: at Od.20.27 the verbal subject proceeds to αἰόλλῃ a paunch full of fat and blood by the fire in his eagerness to roast it as quickly as possible; in other words he makes it wriggle. The other early usage with which we should be concerned is the example in Hesiod (Sc.397–9), where the verb is used in the medio-passive with grapes as the subject, with the sense ‘become discoloured’. An inchoative medio-passive with this meaning would be completely consistent with a corresponding active verb ‘make something change colour/make something discoloured’, but the only instance of the active verb with this meaning is rather late, occurring in Nicander.

Further examples include:

- λιταίνω ‘pray, entreat’ (only E.El.1215), built from λιτανός ‘praying, suppliant’ (the adjective is first attested in Aeschylus, but Hom. λιτανεύω seems to presuppose the same base form, so we can infer that it is ancient);
- ἀτασθαλίω ‘be insolent to’ (in Homer we only find the present participle, e.g. Od.19.57), built from ἀτάσθαλος ‘reckless, presumptuous’ (Hom. etc.);
- κωτίζω ‘chatter; beguile, cajole’ (Hes., Thgn., etc.), built from κωτίλος ‘chattering; lively, persuasive’ (Anacr., Thgn, S., etc.);
- σκερβόλλω ‘vilify, slander’ (Ar.), possibly denominative from σκέρβολος ‘vilifying, slanderous’ (Call.), although the base adjective is attested considerably later than the verb, and we would have to suppose that this is an accident of attestation;
- κινῶρομαι ‘wail, bewail’ (A., Ar., etc.), built from κινυρός ‘wailing’ (Hom. etc.);
- μινῶρομαι ‘warble, hum’ (A., Ar., etc.), built from μινυρός ‘whining’ (Hom.);
- χαλέπτω ‘oppress, crush’ built from χαλεπός, -ή, -όν, ‘cruel, difficult, hard to bear’;
- μειλίσσω ‘soothe, treat kindly, appease’ (present only in Hom.), built from μειλίχος ‘gentle, kind’ (Hom. etc.);
- ἄρπάζω ‘snatch, seize’ (Hom., Hes., A., etc.), built from ἄρπαξ, -ἄγος ‘robbing, rapacious’ (Ar.Eq.137 etc.).¹⁶

7.1.7.3. Explaining the Factitive–Predicative Contrast

This division of the material crucially relies on the proposition that there were two distinct classes of adjective in Greek. This can be substantiated. The underlying thematic structure of these adjectives is reflected in their selection properties: adjectives which give rise to factitive verbs are able to be construed with inanimate and animate nouns alike, e.g. πίων ‘fat’ can modify ‘thighs’ (πίονα μηρία ‘fat thighs’ in Od.11.773); ‘fields’ (πίονες ἄγροί ‘rich fields’ in Il.23.832); beasts (πίονος αἰγός ‘of a fat goat’ in Il.9.207); and ‘men’ (ἄνθρωπος ... πίων ‘fat man’ in Ar.Ra.1092), etc. It seems reasonable to suppose that *fields* and *thighs* are not animate, while *men* and *goats* are animate. We find similar patterns with all of the adjectives that form factitive denominative verbs:

- μαλαχός ‘soft’ can be found with χιτῶν ‘tunic’ (e.g. Od.19.232), λειμῶνες ‘meadows’ (e.g. Od.5.72), etc.;
- μαλθαχός ‘soft’ can be found with ἄνθεα ‘flowers’ (h.Hom.30.15), χρώς ‘skin’ (E.Med.1075), etc.;

¹⁶ It is also possible to use ἄρπαξ as a substantive, ‘a robber’ (Ar.Nu.351 etc.). Supposing that the substantive acted as the basis for the verb would not be inconsistent with the semantic behaviour of denominatives formed from appellative nouns, as we shall see in §7.1.11. An alternative analysis would be to assume a deverbative in -άζω from the root ἄρπ-, cf. ἄρπη ‘sickle’, but on balance this seems much less likely. On the possibly Indo-European nature of the root, see Beekes (2010:137–8).

ἐλιξ 'twisted' can be found with βοῦς 'cattle' (presumably with reference to their horns, e.g. Il.15.633), κάλυξ 'ornament' (h.Ven.87), χλοή 'first shoots of plants' (E.Hel.180), etc.;

φοῖνιξ 'crimson' can be found with ἵππος 'horse' (Il.23.454), φλόξ 'flame' (Pi.P.1.24), ἀγέλα τάυρων 'herd of bulls' (Pi.P.4.205), etc.;

πέπων 'ripe' can be found with σίκυος 'cucumber' (Hp.Morb.3.17);

δαίδαλος 'cunningly wrought, spotted' can be found with πέπλος 'woven cloth' (A.Eu.635);

ποικίλος 'multicoloured, manifold, diversified' can be found with δράκων 'serpent' (Pi.P.8.46) and λίθος 'rock' (Hdt.7.61);

στρογγύλος 'rounded, spherical, curved' can be found with λίθος 'rock' (X.Eq.4.4);

καθαρός 'pure' can be found with ἰκέτης 'suppliant' (A.Eu.474) and ὕδατα 'waters' (E.Hipp.209);

γεραρός 'honoured, majestic' can be found with Ὀδυσσεύς (Il.3.211) and τράπεζα 'table' (Xenoph.1.9).¹⁷

These selection properties are consistent with a *theme* semantic role; they are regularly construed with incontestably *inanimate* nouns. It is far rarer to find examples construed with animate nouns.

On the other hand, adjectives that build predicative verbs are predicated of animate beings themselves, their minds, their expressive output, moral acts, etc., and they are not predicated of inanimate objects: στωμύλος is used of Telephus and Komatas; λιτανός is used of μέλη 'song'; ἀτάσθαλος is used of a 2nd pl. subject, Pelias, Salmoneus, Apollo, Skiron, πατήρ 'father', ἀνὴρ 'man', ἀγγελιώτης 'messenger', λαός 'people', μνηστῆρες 'suitors', μένος 'intent', ὕβρις 'insolence, violence', ἔργα 'deeds', and πρῆγμα 'act, deed'; κωτίλος is used of ἀνὴρ and χελιδών 'swallow'; σχέρβολος is used as the internal n. pl. acc. of μυθέομαι 'tell'; κινυρός is used of a mother cow; μινυρός is used of Lampros and ὀρτάλιχοι 'chicks'; χαλεπός (in its meaning 'cruel') is used of ἄνδρες, ἄνθρωπος 'man', μνηστῆρες, μῆνις 'wrath', ὄνειδος 'reproach', ὁμοκλαί 'threats', φῆμις 'talk', ἔπος 'word, utterance', πόνος 'toil', etc.; μείλιχος is used of Patroclus, Leto, πατήρ, ξένος 'stranger', ἔπος, ἔργον 'work, deeds', δῶρα 'gifts', etc.; as an adjective ἀρπαξ is used of στρατηγός 'commander', λύκοι 'wolves', etc. Such behaviour is consistent with the idea that such adjectives have an implied *agent* or *experiencer* argument structure.

The simplest way to understand the asymmetry between these two classes of deadjectival denominatives is to suppose that there was a semantic restriction on denominative *-ye/o- verbs: the active subject of a Greek *-ye/o- denominative must be an *agent* or *experiencer*. If such a role was not available in the nominal base, it was added, which produced verbs of the factitive/causative type.

This proposed constraint predicts that it should not be possible to read active παίνω and ποικίλλω as predicative *'be fat', *'be elaborate', or inchoative, i.e. *'become fat' or *'become elaborate',¹⁸ nor should it be possible to have impersonal *-ye/o- denominatives.

¹⁷ For the selection properties of αἰόλος, see n. 15.

¹⁸ Causative/inchoative relations are, of course, absolutely normal in such verbs when they are signalled by a change of voice: e.g. παίνω 'make something fat' (tr.) vs παίνομαι 'become fat' (intr.).

This constraint is not the result of any general considerations of Greek grammar. There is no general restriction on *theme* subjects or inchoative readings among Greek active verbs, e.g.:

πίπτω ‘fall’;
 ἀποθνήσκω ‘die’;
 φθίνω ‘perish’;
 θάλλω ‘flourish’;
 ῥέει ‘it flows’, etc.

Nor does such a pattern follow in any obvious way from the very process of forming a denominative. Indeed among denominative -αζω verbs, we find alternations between *agent* and *theme* subjects, e.g. ἰσάζω ‘make equal/be equal’ built from ἴσος, -η, -ον ‘equal’:

ἥ τε σταθμὸν ἔχουσα καὶ εἴριον ἀμφὶς ἀνέλκει
 ἰσάζουσα, ...

‘(like a woman ... holding the balance) who holding the weight and the wool, raises (them) together balancing (them) ...’ (Il.12.434–5);

ἀλλ’ ἐὰν τᾶλλα ἰσάζῃ, τὸν ὑποδεέστερον αἰὲ τιμῶντα εἰ τὴν κοινωνίαν συνιέναι

‘but, other things being equal, (men of sense would counsel you) to prefer always an alliance with a family of moderate means’ (Pl.Lg.773a; cf. Hp.Morb.4.49 and Arist.EN1154^b24).

We also find -αζω denominatives with invariant *theme* subjects and inchoative semantics, e.g. ὑποπερχάζω ‘become dark’ beside περχνός ‘dusty, dark’:¹⁹

... πάροιθε δέ τ’ ὄμφακές εἰσιν
 ἄνθος ἀφιεῖσιν, ἔτεραι δ’ ὑποπερχάζουσιν

‘In the foremost row are unripe grapes that cast the blossom while others are growing dark’ (Od.7.125–6).

It seems that such behaviour was not possible for ancient deadjectival *-ye/o-verbs. This generalization, together with some closely related observations about other classes of denominative formation, will prove useful in elucidating the history of a number of individual denominative verbs (some of which are apparent counterexamples to Sievers’ Law), such as φαείνω, πτώσσω, φρίσσω, and σκήπτομαι (§§7.1.8.2, 7.1.11.2, 7.1.14.1, 7.1.14.2). It will also help to identify as semantically anomalous certain examples of the very rare class of apparent *-ye/o- denominatives formed from compounds, εὐφραίνω ‘cheer’ and ἐγγλύσσω ‘be sweet’; from such observations the generally weak and problematical nature

¹⁹ It is plausible that πέρχος was an adjective denoting a dark colour or stained appearance, though it is not attested in this function; cf. ὁ πέρχος a type of hawk in Arist.HA.620^a20, ἡ πέρχη a river fish in Arist.HA505^a17, also περχνός/πέρχνος, -η, -ον ‘dusty, dark’ of a serpent in Arist.Mir.846^b18, and a type of eagle in Il.24.316. The adjective ἐπιπέρχνος, -ον ‘somewhat dark’ denotes the colour of certain hares in X.Cyn.5.22.

of the evidence for this class will emerge, contributing in turn to establishing the proper analysis of the apparent counterexamples to Sievers' Law ἀγρώσσω and δρυφάσσω (§7.1.8.3). We shall see that important shared semantic features identified among the denominative verbs also hold true for the inherited primary *-ye/o- verbs in Greek and for purely Greek primary *-ye/o- verbs built from well-supported Indo-European roots, but some other formations, of less clear antiquity, show contrasting semantic behaviour (see especially §7.2.2). So the ideas developed here will be of continuing utility in this enquiry, providing otherwise unavailable chronological insights.

7.1.8. Complications in Deadjectival Semantics

So far we have left out of consideration a small number of less straightforward deadjectival examples which now require more detailed discussion. Some of these are of interest only insofar as they enable us to refine the semantic analysis which we are developing here. Others verbs are of interest in that their semantic behaviour proves to be so anomalous that, in conjunction with other suggestive phonological and morphological factors, serious doubts are raised as to their antiquity. It is certainly not the case that every semantically anomalous example is a counterexample to Sievers' Law, but some are, and the enhanced understanding of this category provided by this approach to the data proves useful in identifying early and late patterns of formation more generally.

7.1.8.1. Ambiguities in Argument Structure

The verb ἐχθαίρω 'hate' (Hom. etc.) provides an interesting supplement to our conception of the rules governing the semantics of these denominative verbs. It is built from ἐχθρός, which shows two distinct meanings: 'hated' (e.g. Od.14.156, Hes.Th.766) and 'hostile' (e.g. Hes.Op.342, Pi.O.7.90). The former meaning of the adjective seems to indicate clearly a *theme* semantic role, whereas the latter meaning indicates an *agent* or *experiencer*. We cannot suppose that ἐχθαίρω represents a factitive verb derived from ἐχθρός in the sense 'hated', since such a verb would mean '*cause to be hated'; this is not what ἐχθαίρω means. Instead, the subject of the denominative *-ye/o- verb has the *agent* or *experiencer* semantic role implied by ἐχθρός in the sense 'hostile'.

If we take the view that the ἐχθ- root in Greek is of a secondary Greek origin, then perhaps nothing of importance can be deduced from the evidence of this verb. But if we do not follow this line (see §4.9.4), and if this example represents the regular semantic derivation, then we may make a number of deductions. When the base adjective was ambiguous in the sense that more than one semantic role was theoretically available, the corresponding denominative *-ye/o- verb was *not* ambiguous in its argument structure. When an *agent* or *experiencer* semantic role was available in the base, this role was preferentially realized as the verbal subject. This conclusion must be treated with caution, given the uncertainties over the antiquity of this root and its derivatives.

7.1.8.2. *Phonological and Semantic Problems*

It seems reasonably clear that φαείνω ‘shine, give light’ (Hom., Hes., Call.) is built from φαεινός ‘shining’ (Hom.). But it is far less clear that we can assume that this was a very early **-ye/o-* denominative. It is clear that φαεινός derives from **p^ha-wes-no-s* (cf. Aeol. φάεννος) based on φάος (n.) ‘light’ (Hom.)—cf. Pamph. φάβος (Eust.), ultimately containing the root **b^heH₂-* (see Beekes 2010:1551–2); the formations with **w* are unique to Greek. According to the morphological and phonological patterns we have seen so far, this should have yielded a denominative verb **p^ha-wes-n-yō*; such a form should not have yielded the historically attested φαείνω. So we know that φαείνω must represent a later innovation. It seems to have been built in a similar way to ἐλαύνω, i.e. with the potential addition of the **-ye/o-* suffix, but without the concomitant vocalization of the preceding resonant.

There is also a semantic problem in that the adjective φαεινός seems to have a *theme* semantic role. This is confirmed by the fact that it regularly modifies *inanimate* nouns (e.g. πῦρ ‘fire’, Il.5.215; σελήνη ‘moon’, 8.55; δόρυ ‘tree, spear’, 4.496), yet the verb does not seem to be obviously factitive as we would expect. The meaning ‘shine’ seems to be unambiguously predicative. It could well be that this form only developed after the earlier semantic rules had broken down.

7.1.8.3. *Problems with Compounds*

Deadjectival denominatives based on compounds present a number of problems of interpretation, in some cases from both a morphological and a semantic point of view.

From the adjective ἄφρων (gen. ἄφρωνος) ‘foolish’ we find a denominative verb ἀφραίνω ‘be foolish’. It seems likely that the adjective has an *experiencer* argument and this is realized as the verbal subject, just as we might expect.²⁰ However, this contrasts markedly with the behaviour of the morphologically parallel factitive verb εὐφραίνω ‘make happy’ (Hom. etc.), built from εὐφρων ‘happy, well-disposed’. We might also expect an *experiencer* argument in the adjective *a priori*, and the difference in verbal meaning is difficult to explain. If the semantic patterns observed elsewhere truly applied, then we would be tempted to suppose that εὐφρων had a *theme* argument structure at the relevant stage, in order to explain the factitive semantics of the derived denominative verb; it is conceivable that, at an early stage, being ‘happy, well-omened, well-disposed, kindly’ or having φρένες which are εὔς was not something which one was mentally engaged in, or was not something which necessitated active involvement. This seems possible, and perhaps even capable of investigation, but rather stipulative at this stage.

²⁰ The base adjective is used freely to modify gods, humans, and animals with the sense ‘foolish’. But in etymological terms, we might expect ἄ-φρων to have had the meaning ‘not having a mind’ at a sufficiently early stage and show a *theme* argument structure. From this point of view the verbal meaning might appear anomalous. But, in fact, there is no way of knowing at what stage the meaning ‘foolish’ developed—perhaps from the very moment at which the compound was formed. We only find the ‘etymological meaning’ in three instances: εἰδωλα ἄφρονα ‘mindless statues’ (X.*Mem.*1.4.4) and modifying σώμα ‘body’ (X.*Cyr.*8.7.20.2 and Pl.*Epin.*983d5). These seem likely to be conscious reanalyses of the compound.

It is perhaps more pertinent to note that εὐφραίνω and ἀφραίνω are practically the only secure examples of consonant-stem *-ye/o- denominatives formed from compounds. It seems likely, given the large numbers of simplex formations and the almost total dearth of compound examples, that εὐφραίνω and ἀφραίνω were built secondarily, at a stage when the regular rules of *-ye/o- denominative formation had broken down.

The only other apparent examples of *-ye/o- denominatives from compounds are ἀμβλῦσσω 'be short-sighted' (discussed in §6.5.1) ἐγγλύσσω 'be sweet', ἀγρώσσω 'catch, go hunting', δρυφάσσω 'fence in', and ἀπινύσσω 'lack understanding'. This is a very mixed body of evidence.

The verb ἐγγλύσσω (hapax in Hdt.2.92) ← ἔγγ-γλυκυσ (Dsc.) is morphologically unique, insofar as it seems to be a denominative *-ye/o- verb formed from a *u*-stem by deleting the *u*-vowel. It hardly provides useful support for the category of *-ye/o- denominatives from compounds.

It is also noteworthy that this unusual formation contradicts the semantic generalization that the subjects of active *-ye/o- verbs should be *agents* or *experiencers*. The verb is used in a passage discussing the properties of the lotus. We are told that the middle poppy-like part is ground to make bread, and ἡ ῥίζα ... ἐδωδίμη καὶ ἐγγλύσσει ἐπεικέως, ἐὼν στρογγύλον, μέγαθος κατὰ μήλον 'the root ... is edible and pretty much ἐγγλύσσει, being spherical and the size of an apple'. It seems likely that ἐγγλύσσει means 'is sweet' or 'tastes sweet', for which an *agent* or *experiencer* verbal subject is out of the question. It seems likely that this verb is a neologism, *pace* Chantraine (1999:228), perhaps invented by Herodotus. It certainly does not recur elsewhere, except in grammatical treatises.

It is unclear how to explain the formation of ἀγρώσσω 'catch; go hunting' (Hom.). Ultimately, the formation must contain the root found in ἀγρός 'field, country' (e.g. Il.23.832)²¹ or ἄγρα/ἄγρη 'hunting, the chase; prey' (Od.12.330, Hes.Th.442, etc.).²²

Assuming that this verb is based on the latter root, it is sometimes supposed that the formation rests on a compound base with a first member *agr- and a second member involving the root *H₃ek^w-/H₃k^w- 'see' (see Chantraine 1999:14). We could posit a compound *agr-H₃k^w- > *agrōk^w- 'one who *sees the prey*', with a zero grade of the second member of the compound. Alternatively, we could suppose a form *agro-H₃k^w-. Presumably these putative compounds would be of the rare type exemplified by βουπλήξ 'ox-goad' (Il.6.135); cf. χέρινψ '(water) for washing hands' (Od.1.136 etc.). The persuasiveness of this argument is somewhat diminished by the complete absence of any evidence for the putative compound *agrōps. Furthermore, there is a plausible mechanism for deriving ἀγρώσσω, using material that is attested.

These two roots in ἀγρός and ἄγρα/ἄγρη appear to have mutually interfered over time, whatever their original relationship may have been. We find ἀγρότης, gen. -ου (adj. and subst.) used to denote 'a countryman' in E.Or.1270, but a 'hunter' in Od.16.218. The first meaning appears to be related to ἀγρός, while the second relates to ἄγρα. Similarly ἀγρώστης, gen. -ου means 'rustic' (adj. or

²¹ Compare Ved. *ājra*-, Lat. *ager*, Goth. *akrs*, Arm. *art*, etc. (see Pokorny 1959:6).

²² Compare Ved. *ghāsé-ajra* 'impelling to consume' (hapax in VS.21.43), Av. *azra*- (a hapax used as the epithet of a she-wolf); cf. OIr. *ár* 'carnage' (see Pokorny 1959:6).

subst.) in S.Fr.94 and E.HF377, but ‘a hunter’ in A.R.4.175, and denotes a type of spider in Nic.Th.734.

Risch (1974:35) supposed that ἀγρώσσω may be formed from ἀγρώτης (e.g. E.Ba.564), presumably in the same way as ἐρέσσω ‘row’ has been argued to be derived from ἐρέτης ‘rower’:

ἐρέτης : ἐρέσσω :: ἀγρώτης : X,
where X=ἀγρώσσω.

However, this analysis presents a problem: ἀγρώτης only means ‘wild’ in its two occurrences (E.Ba.564 and E.Rh.266, cf. ἀγρός) and not ‘hunter’. The verb ἀγρώσσω only means ‘hunt’ not ‘be wild’ or ‘make wild’. Risch has to suppose that ἀγρώτης could have once meant ‘hunter’, and given the confusion we saw in ἀγρότης and ἀγρώστης, this is rather plausible.

Another possibility is to suppose that ἀγρώσσω was derived from ἀγρώστης ‘hunter’ according to the pattern ἐρέτης : ἐρέσσω :: ἀγρώστης : X, where X= *agrōssō, which would surely have been realized as ἀγρώσσω. There is no reason to suppose that the *-ye/o- suffix was involved.

The usual view of δρυφάσσω ‘fence in’ (Lyc.) is that it is a denominative from δρύφατοι ‘railing, partition, bar’ (Ar.), and the noun itself is somehow derived from δρυ- ‘wood’ + φραχ- (the root of φράσσω ‘fence in’) + -το- with subsequent dissimilation of the second *r (see e.g. Beekes 2010:357). However, it seems pretty unlikely that we should project a denominative *dru-p^h(r)ak-t-ye/o- back to a particularly early stage. Even if we leave aside the issue of the proper outcome of a sequence *-kty- (see § 7.1.11.1), it seems unlikely that this should be taken seriously as a counterexample to Sievers’ Law. A much simpler explanation lies readily to hand. We could easily assume that δρυφάσσω is a later innovation involving interference between δρύφατοι (whatever its origin) and the verb φράσσω ‘fence in’. This explanation would have the effect of reducing still further the evidence for *-ye/o- denominatives built from compounds.

It is difficult to imagine an alternative to the conclusion that ἀπινύσσω ‘lack understanding’ (e.g. Od.5.342) is a denominative from *ἀ-πίνυτος ‘lacking understanding’ (cf. Hom. πινυτός ‘prudent, discreet’). The major difficulty with this explanation is that the apparent base form *ἀ-πίνυτος is not attested except as ἀπινύτως (Hsch., EM).

The earlier existence of *ἀπίνυτος is not unthinkable, given that we certainly have the early adjective πινυτός. But the rarity and otherwise difficult nature of the evidence for *-ye/o- denominatives from compounds makes this question less than straightforward. If ἀπινύσσω is a true example of such a formation, then it is still rather difficult to assess its properties without also being able to investigate the properties of its base.

7.1.8.4. Problems of Attestation and Problems of Interference

It is possible that we have evidence for a factitive verb which is anomalous from the point of view of the patterns we have seen elsewhere. This example has no consequences for our view of Sievers’ Law, but could affect our wider analysis and so must be addressed:

πινύσσω ‘make prudent’, ‘admonish’ (impf. or aor. ἐπίνυσσα, Il.14.249).

This verb could be a denominative from πινυτός, -ή, -όν ‘prudent, discreet’ (Od.1.229).²³ We would have expected the adjective to have an *experiencer* argument and so give a predicative ‘be prudent’ rather than a factitive.

But this verb is unlikely to threaten our analysis of the semantics of *-ye/o- formations. On the one hand, its status is in some doubt. Its only early occurrence is a single apparently augmented form ἐπίνυσσε in Il.14.249, which is ambiguous between aorist and imperfect. Furthermore, this passage is far from clear in its meaning; Szemerényi (1964:56–78) proposed the alternative segmentation ἐπί-νυσσε with the meaning ‘give a nudge’ *vel sim*.

If the verb is truly a denominative from πινυτός, then the unexpected meaning could be attributed to the influence of the far more common collateral verb πινύσχω ‘make prudent, admonish’ (A.Pers.830 etc.).

7.1.8.5. The Development of Inchoative Semantics

The verb μελαίνω (Hom., Nic., etc.) is built from μέλας, μέλανος ‘black’ (Hom. etc.). We would predict that this would have the factitive sense ‘make black’ and indeed it does:

τὸ ἀπορούμενον, διὰ τί ὁ μὲν ἥλιος μελαίνει τὴν σάρκα, τὸ δὲ πῦρ οὐ

‘The puzzle of why the sun blackens the flesh but fire does not’ (Thphr.Ign. fr. 38 l. 8.; cf. Arist.966b22 etc.).

It is interesting to note that Homer only has medio-passive forms for this verb. These have an inchoative meaning, as do all the medio-passive forms of factitive verbs in Greek:

ἡ δὲ μελαίνεται ὀπισθεν ἀρηρομένη δὲ ἐώκει

‘And it [the field] grew black behind and seemed as if it had been ploughed’ (Il.18.548).

As our rules predict, Homer cannot use the active verb μελαίνω to indicate that the subject of the verb is black. He has to resort to medio-passive inchoative forms, whereas he could use ἀτασθάλλω etc. with active endings in the sense ‘be insolent’. Our theory can explain this curious fact because we would predict that the active forms would have a factitive value. The fact that such early attested examples behave as our theory predicts may support our attempt to project these facts back into Proto-Greek.

However, contrary to our expectations, in at least one instance, the active verb appears to mean ‘become black’:

²³ The etymology of this base form is unclear; there have been attempts to invoke the verb πνέω ‘breathe’ < **pnewō*, and πέπνυμαι ‘be prudent, clear-minded’, but how the vowel in the initial syllable of πινυτός could have arisen in this case is unclear; some kind of anaptyxis is possible given that Hsch. has a collateral form πνυτός· ἔμφρων, σώφρων ‘sensible, reasonable’. On the basis of this variation, Beekes (2010:1194) thinks that this adjective had a Pre-Greek origin. For further discussion of etymological issues, see CEG 4 (100).

ὅσον μὲν οὖν ἂν παλαιότατον ὄν τῆς σαρκὸς τακῆ, δύσπεπτον γιγνόμενον μελαίνει
μὲν ὑπὸ παλαιᾶς συγκαύσεως

‘Therefore all the oldest part of the flesh that is decomposed becomes tough and becomes black by the continued combustion’ (Pl.*Ti.*83a).

This usage does not conform to either of the semantic patterns which we have identified for active verbs with the **-ye/o-* suffix: predicative or factitive. It is an inchoative active form and appears to have an identical meaning to earlier medio-passive forms. The solution to this problem may lie in the exclusively medio-passive morphology in the early history of this verb. The active forms may only have been created after the Homeric period. If this were the case, then the semantics of the active forms could not be taken to reflect the semantics of the **-ye/o-* suffix itself, for **y* was lost in Greek before Homer; this suffix could not have existed as such at that later time. The immediate model for this process is not entirely clear, but when we have looked at some secondarily created verbs, we shall see that this semantic development could fit into a wider pattern emerging in Greek.

7.1.8.6. A Difficult Case: ἀτάλλω

In formal terms, ἀτάλλω seems to be a **-ye/o-* denominative from the adjective ἀταλός. The verb only has five independent occurrences before the Hellenistic period, but there seem to have been two distinct uses: ‘nurture, raise’, with an *agent* subject and with children or animals as the *theme* direct object (S.*Aj.*559, metaphorical in Pi.*Fr.*214, pass. in *h.Merc.*399–400), or ‘play, frolic, *vel sim.*’ (with children or animals as the *agent* subject) (Hom., Hes.*Op.*130–1).²⁴ Given the patterns we have seen elsewhere among the **-ye/o-* denominatives, it is unexpected to see the semantic role implicit in the base adjective realized in two different ways in the corresponding derived verb.

The base adjective ἀταλός relates principally to young people or animals, and conceivably it just meant ‘young’ in the first instance.²⁵ From here its usage appears to have been extended in two directions, bringing out different salient properties of youth: on the one hand, the idea of youthful vigour or grace (it is difficult to tell which),²⁶ and on the other hand, tenderness, gentleness, or

²⁴ For a general discussion of the semantics, consult Chantraine (1999:131–2), CEG 11 (2006: 345–6), and Moussy (1972).

²⁵ It can apply to the mental state of young girls and unmarried male youths (Il.18.567), and it can be used as an epithet of young women themselves (Od.11.39), also of foals (Il.20.222) and of the young Phaethon (Hes.*Th.*989). We may compare the Hesychian glosses ἀτάλα: νήπια ‘child, the young of an animal; childish’ and the derivative ἀτάλματα: παίγνια ‘toys’. The compound ἀταλάφρων, which is used of the baby Astyanax in the arms of his nurse at Il.6.400, also points in the same direction (on which see further below).

²⁶ This kind of usage seems to be found in the Dipylon inscription (c.740 BCE): ὅς νῦν ὀρχηστῶν πάντων ἀταλώτατα παίζει ‘who, of all the dancers, now dances in the most ἀταλός fashion’. This usage might favour an interpretation ‘graceful’, ‘skilful’, ‘vigorous’, *vel sim.*, depending on which particular property we think might have been desirable in this context. We may also compare the usage in an epigram of Erinna: Ἐξ ἀταλῶν χειρῶν τάδε γράμματα ‘this picture (was made by) hands which are ἀταλός’—it seems probable that skill or grace is what is important here, rather than that the hands in question be ‘young’. See Moussy (1972:159–60, 166–8).

affection—properties which could then also be sensibly predicated of mothers and children alike.^{27,28}

Given the semantic patterns we have already seen, it is reasonably easy to see how the derived verbal meaning ‘play’, ‘frolic’, ‘leap’, or ‘bound’, with an *agent* subject, might have developed from an adjective meaning ‘playful’, ‘vigorous’, or ‘graceful’, insofar as a base adjective with such a meaning could probably have borne an agentive interpretation. Similarly, if ἀταλός could bear the meaning ‘tender’, ‘loving’, or ‘gentle’, then we can see how a verb with an *experiencer* subject ‘experience tender/nurturing feelings’ might have developed. In this respect it might be argued that the distinct meanings of the denominative verb arise out of the distinct spheres of usage of the base adjective. However, the sparse attestation, and the ambiguity of the contexts in which these forms are found, makes it very difficult to come to a confident conclusion. Furthermore, the reasoning is totally post hoc, in that we are retrospectively picking out those aspects of the meaning of ἀταλός which accord with the meaning of ἀτάλλω. If we focused instead on the meaning ‘young’, which we might cogently argue to have been the earliest sense of the base adjective, then this would have rather suggested an intrinsic *theme* argument, and given the patterns of formation seen elsewhere, we might have reasonably expected a derived *-ye/o- denominative to mean *‘make young’, or perhaps *‘make someone feel young’, or even *‘infantilize’.²⁹

The significance of this verb for a more general semantic theory might be undermined, if it could be shown that Leumann (1950:139ff.) was right when he argued that ἀταλός itself, and all of its derivatives, resulted from a Homeric reanalysis of the compound ἀταλάφρων at Il.6.400. According to Leumann, this started as ἄ-ταλάφρων ‘timid’, being a negative compound of ταλάφρων ‘with an enduring heart’ (which would explain why we do not find the expected *atalo-p^hrōn), but this was reanalysed as ἀταλά-φρων, and the analysis was extended to new instances such as ἀταλά φρονέοντες, and finally an independent adjective ἀταλός. From this point of view ἀτάλλω (and ἀτιτάλλω) would also have to be secondary creations, and we should not necessarily expect them to follow the usual semantic patterns.

²⁷ At Pi.N.7.910–12 Sogenes will bear a positive attitude of some kind towards his father: εὐτυχῶς - ναίειν πατρὶ Σωγένης ἀτάλῳ ἀμφίεπων - θυμὸν ‘Sogenes would dwell happily, fostering a spirit amenable to his father’. At E.El.699 the adjective applies to a ewe whose lamb has a golden fleece.

²⁸ It is difficult to know what to make of the application of ἀταλός to the mindset of Hecate in the Homeric Hymn to Demeter (ἀταλά φρονέουσα at h.Cer.24), since the characteristics of this goddess underwent substantial changes after her first attestation in Hesiod, where she is described as a nurturer of the young, κουροτρόφος. It is perhaps best to leave this example to one side.

²⁹ We should perhaps resist analysing ἀτάλλω in isolation from ἀτιτάλλω ‘nourish, bring up a young child’ (usually not one’s own child, e.g. Pi.N.3.58, Il.18.323; cf. the derivative ἀτιτάλτας ‘foster father’, Gortyn). Like ἀτάλλω, this verb can also describe the nurture of animals (Il.5.271, Od.15.174). Metaphorically, it can mean cherish (e.g. Theoc.17.58). There is an obvious formal problem. If ἀτιτάλλω is related to ἀταλός and ἀτάλλω, then it seems to show a pattern of internal reduplication which does not have good parallels elsewhere. It does not seem likely that it is a denominative based on ἀταλός, *pace* Chantraine (1999:131–2); at any rate, if it is, the morphology is unique. Conceivably, ἀτιτάλλω represents the outcome of interference between ἀτάλλω and an originally unrelated reduplicated formation with similar meanings. But it is difficult to know how to test this idea given the sparsity of the attestations and the lack of cognates.

The poetic nature of the attestations of these forms does not give us any solid basis for supposing ἀταλός was a ‘real’ adjective in Greek, but all the same, Leumann’s analysis does perhaps stretch credulity, and it is probably difficult to believe the level of morphological productivity shown by what is supposed to be an epic creation. It is certainly possible to understand the semantics of ἀτάλλω in the light of our other observations, but it would not have been easy to predict in advance the two distinct meanings which we actually find.

7.1.9. Sievers’ Law and the Deadjectival Formations

Having made a certain amount of progress in understanding the formation of deadjectival denominatives from both a morphological and a semantic point of view, it is now important to return to the main question at hand, to consider the phonological structure of these verbs and any consequences for Sievers’ Law.

Of the deadjectival examples considered so far, three verbs involve the **-ye/o-* suffix being added to stems ending in a syllabic resonant, i.e. *παιάνω* (< **pīwn̥-ye/o-*), *πεπαίνω* (< **pekʷn̥-ye/o-*), and probably *ἐχθαίρω*. The evidence of *ἀφραίνω* and *εὐφραίνω* is doubtful, given the relatively unsupported nature of the category of denominative **-ye/o-* verbs from compounds and the semantically anomalous character of *εὐφραίνω*. In any case, the non-syllabic nature of the **y* semivowel in such examples is unsurprising on any account.

Many more examples involve **-ye/o-* being added to an uncontroversially light sequence, either directly or through a process of thematic vowel deletion: *καμπύλλομαι*, *μιγαζόμενος*, *ποικίλλω*, *ἐλίσσω*, *δαιδάλλω*, *στρογγύλλω*, *καθαίρω*, *γεραίρω*, *αἰόλλω*, *στωμύλλω*, *λιταίνω*, *ἀτασθάλλω*, *κωτίλλω*, *σκερβόλλω*, *κινῦρομαι*, *μινῦρομαι*, *χαλέπτω*, *μειλίσσω*, *ἀρπάζω*, and *μελαίνω*. We cannot use the evidence of *πινύσσω* with any confidence, since the existence of this verb is in doubt. The evidence of *ἐγγλύσσω* and *ἀπινύσσω* is also terribly uncertain, since **-ye/o-* denominatives from compounds are not likely to be an ancient category.

For the same reasons, the apparent counterexamples to Sievers’ Law *ἀμβλυόσσω*, *ἀγρώσσω*, and *δρυφάσσω* cannot be taken too seriously. We have suggested, on phonological and semantic grounds, that if *φαείνω* is from **pʰa-wes-n̥-yō*, this may well be a relatively late formation and not necessarily relevant for our assessment of the validity of Sievers’ Law among the **-ye/o-* verbs.

There are a few other examples from the verbs considered thus far that can be seen as counterexamples to Sievers’ Law, under certain assumptions.

7.1.9.1. Further Potential Counterexamples to Sievers’ Law

We saw that the post-Homeric verb *φαινίσσω* ‘make something red’ (E. etc.) appears to be based on *φοῖνιξ*, *-ιξος* ‘purple, crimson’. The difficulty from the point of view of Sievers’ Law is that *φοῖνιξ* shows a suffix *-ιξ-* outside the nominative. If we need to reconstruct **pʰoyn̥-ik̥-ye/o-*, then this would constitute a counterexample to Sievers’ Law.

However, there is a complication in that Herodian is quite clear that the vowel in the nominative singular is short, hence the circumflex accent on the first syllable of the nominative (for Herodian’s view, see Arc.160.7–17, Hdn. *Peri Dichr.*9.19–25;

Σ Od.26(S) and Σ Il.10.258e(A)). A similar problem arises in relation to the nominative of *κηρυξ* ‘herald’, which shows a long *ū*-vowel outside the nominative. West (1990:xlvi) argues that we should read *φοῖνιξ* and *κηρυξ*, but Probert (2003:84) argues that the testimony of Herodian should be taken seriously, even if we cannot understand the reasons for such a pattern of length alternation. It seems distinctly possible that the short *ū* of *κηρυξ* and the short *ī* of *φοῖνιξ* are real. In the case of *κηρυξ*, we shall see that there might be grounds for supposing that this represents an archaism (see §7.1.11.1, p. 320), but in the case of *φοῖνιξ* it is difficult to explain. So the possibility exists that *φοινίσσω* was formed from this short stem and that we could reconstruct **p^hoynik-ye/o-*. However, such a proposition seems impossible to prove.

It has often been assumed that *φοῖνιξ* in the sense ‘purple, crimson’ is based on *φοινός* ‘blood red’ (e.g. Il.16.159), whose etymology is disputed (see Beekes 2010:1584–5). Assuming for a moment that these are not loanwords (in which case the problem of adherence to Sievers’ Law would cease to be so pressing in any case), then we have to reconstruct a morphological structure for *φοινίσσω* which is uniquely complex. Insofar as *φοινός* is related to *φόνος* ‘murder’ with a **-ye/o-* nominal suffix, then we would have to reconstruct a synchronic structure **p^hon-y-īk-ye/o- > φοινίσσω*. In this light it may be considered rather more likely (but in this particular case unprovable) that *φοινίσσω* is an analogical formation built at a time when *φοιν-* was monomorphemic (i.e. after palatalization). It might even be possible to suppose that it was simply derived from *φοινός*, *-ή*, *-όν* ‘blood-red’ (e.g. Il.16.159) with a suffix *-ισσω*. But this analysis seems unprovable.

The evidence of *φοινίσσω* is difficult to assess. There seem to be enough etymological doubts and problems that we should not take this example as probative when it comes to assessing the validity of rules governing semivowel syllabicity at the earliest stage. By the same token, we should be cautious in relying on this example too heavily when it comes to understanding the semantics of **-ye/o-* verb formation.

Sometimes the important question is one of chronology. We know that *μαλάσσω* ‘make soft’ (Hp., Ar., Pi., etc.) is derived from the adjective *μαλαχός* ‘soft, weak’.³⁰ It may be that we should connect *μαλαχός* with *βλᾶξ*, gen. *βλᾶχος* ‘stolid, stupid’ (e.g. Pl.Grg.488a) < **mlāk-s*.³¹ This connection would lead us to reconstruct a root **mlH₂k-*. Depending on when the **-ye/o-* denominative was formed, it is conceivable that we could reconstruct a stage **mlH₂k-yō > *malak-yō*. In other words, a heavy sequence might have been implied if the verb was created at a sufficiently early stage, and if we accept that **CRHC-* counted as a heavy sequence for Sievers’ Law. However, the ongoing productivity of the **-ye/o-* denominative formation makes this a rather weak argument, since it is difficult to be sure at which stage this form was created.³² In any event, the premiss upon which

³⁰ We find a parallel formation *μαλθασσω* ‘make soft’ beside *μαλθαχός* ‘soft, etc.’ The base adjective has been compared with OHG *mlti* ‘mild’ and Ved. *mārdhati* ‘neglect’ (see LIV² 431). At any rate, it seems clear that *μαλθαχός* has been influenced by *μαλαχός*.

³¹ Compare Ved. *mlā-tā-*, OIr. *mláith* < **mlā-ti-* (for further possibilities, see Beekes 1969:198).

³² We should note that Beekes (2010:218, 896) explains the alternation *βλᾶξ/μαλαχός* by supposing a basic root **mlH₂-* with a suffix **-k/-ek-* producing *βλᾶξ* < **mlH₂k-* and *μαλαχός* < **mlH₂-ek-*. However, the positing of two suffixes/suffix variants here seems somewhat ad hoc.

the root **mH₂k-* is based, i.e. that *μαλαχός* is connected with *βλᾶξ*, gen. *βλᾶχος*, is merely a possibility; the semantic connection does not seem all that close to me.

7.1.10. Denominatives from Abstract Nouns

Among the denominatives from abstract nouns we find the same mix of morphological types, with verbs built directly from the nominal stem without alteration, or from reduced forms of the nominal stem, with a zero-grade element preceding the suffix, or with thematic vowel deletion.

In semantic terms we always find an *agent* or *experiencer* subject. In this class of examples the semantic role of the subject simply involves spelling out the semantic role implicit in the base noun. In the following examples, most base nouns imply an *experiencer* argument, and one example shows an *agent* argument (*ἔρις* 'strife, rivalry'), which is realized as the verbal subject.

For the most part these examples do not bear on the question of Sievers' Law, because the denominative verb ends up with a configuration **-CR-ye/o-*, e.g.:

δειμαίνω 'experience fear' (*h.Hom.*, *Hdt.*, *A.*, *S.*, etc.), built from *δειμα* 'fear' (*Hom.* etc.);

μελεδαίνω 'care for' (*Archil.*, *Thgn.*, etc.), built from *μελεδών* (*f.*) 'care, sorrow' (*h.Hom.*, *Thgn.*);

θαυμαίνω 'experience astonishment/wonder' (*Pi.*), built from *θαῦμα* 'wonder, astonishment' (*Hom.* etc.);

κωμαίνω 'experience drowsiness' (*Hp.*), built from *κῶμα* 'deep sleep' (*Hom.* etc.).

But in a couple of cases, more pertinent phonological configurations are found:

ὀπιζομαι 'experience awe and dread; care for (after Homer)' (only present and imperfect in Homer), built from *ὄπις*, *ὀπίδα* 'vengeance of the gods; religious awe; the care or favour of the gods' (*Hom.*, *Hdt.*, *Pi.*), though cf. the acc. *ὄπιν* (e.g. in *Il.* 16.388);

ἐρίζω 'strive, challenge; contend in a thing etc.' (*Hom.* etc.), built from *ἔρις*, gen. *-ιδος* 'strife, rivalry' (*Hom.*);

ἱμείρω 'experience desire' (*Hom.* etc.), built from *ἱμερος* (*m.*) 'a desire, longing' (*Hom.* etc.);³³

πυρέσσω 'experience fever, am feverish' (*E.*, *Ar.*, etc.), built from *πυρετός* 'fiery heat, fever' (*Hom.* etc.);

ὠδίνω 'experience the pains of childbirth', built from *ὠδίς*, *-ῖνος* 'pains of childbirth' (*Hom.* etc.).

If this last example implies a **-ye/o-* verb **ōdīn-ye/o-*, then this looks like a counterexample to Sievers' Law. But the degree of importance we may attach to it is limited by the fact that the root appears to be of purely Greek origin, or at least there is not an obvious etymology, and the suffix *-ῖν-* is a purely Greek suffix; so

³³ On the denominative status of this example, see n. 3.

there is practically no chance that the nominal stem is old enough to mean that the derived denominative can be counted as evidence in this enquiry.

A different semantic pattern can be seen in examples like *πημαίνω* ‘inflict distress’ (Hom. etc.), which is based on the abstract noun *πῆμα* (Hom. etc.). This noun can denote ‘anguish’ and imply an *experiencer* argument. But it can also be predicated of persons, to mean that they are a ‘bane’ or ‘calamity’ to others (e.g. Il.22.421, Il.3.50, S.OT379, Hes.Op.346). In this usage an *agent* argument is clearly implied. It is this latter implicit argument which is spelled out as the subject of the corresponding denominative *-ye/o- verb. The verb *always* means ‘inflict distress’ and never *‘experience distress’.

This behaviour could be explained if we assume a hierarchy of semantic roles³⁴ ensuring that the *agent* argument is preferentially realized as the subject, while the implicit *experiencer* argument can be optionally realized as the verb’s direct object.

7.1.11. Denominatives from Appellatives

We may identify, on semantic grounds, a class of denominative *-ye/o- verbs built from appellative nouns. Many appellatives appear to imply that their referent is a potential *agent*. The subject of corresponding denominative verbs generally fulfils this implied *agent* role, and the verb means ‘act as an X’, where X is the base noun.³⁵

Some examples do not bear on the question of Sievers’ Law, because the denominative verb ends up with a configuration *-CR-ye/o-, e.g.:

ποιμαίνω ‘herd, tend/act as a shepherd’ (Hom., Hes., E., etc.), built from *ποιμήν* ‘shepherd/herdsman’ (Hom. etc.);

τεκταίνομαι ‘contrive/do carpentry’ (Hom. etc.), built from *τέκτων* ‘carpenter’ (Hom. etc.); cf. Ved. *tákṣan-* etc.—the function of the medio-passive morphology in this example is unclear.

Other more pertinent examples include:

ἄγγέλλω ‘act as a messenger’ (Hom.), built from *ἄγγελος* ‘messenger’ (Hom.); *ναυτίλλομαι* ‘sail by sea’ (Hom. etc.), built from *ναυτίλος* ‘seaman, sailor’ (A., Hdt., etc.)—the function of the medio-passive morphology in this example is unclear;

αἰχάλλω ‘flatter, fondle’ (trag. esp. of animals), built from *αἰχάλος* ‘flatterer’ (Hsch.);³⁶

βασκαίνω ‘bewitch’ (D., Arist., Theoc., etc.), built from *βάσκανος* ‘sorcerer’ (Ar., D.);³⁷

³⁴ Such a hierarchy has been widely invoked in the literature; see e.g. Jackendoff (1972:43–6), Larson (1988:382), Bresnan and Kanerva (1989).

³⁵ These verbs all have an optional transitive syntax. None of them is exclusively intransitive.

³⁶ Beekes (2010:37–8) thinks that the derivational pattern could equally work the other way round.

³⁷ The secondary meaning of *βασκαίνω* ‘disparage, slander’ can be explained as a predicative sense regularly derived from the adj. *βάσκανος* ‘slandorous’ (Ar., D.).

φυλάσσω ‘keep watch; guard’ (Hom.), built from φύλαξ, gen. φύλακος ‘watcher, guard, sentinel’ (Hom.) and its ancient doublet nom. φυλακός (e.g. Il.24.566);

ἀνάσσω ‘be lord, master’ (Hom.), apparently built from ἄναξ, gen. -κτος ‘lord, master’, cf. Dor. φάνακες;

παίζω ‘behave like a child, play, dance; play an instrument/game; hunt’ (Hom. etc.), Dor. παίδω (Theoc.15.42), built from παῖς, παιδός ‘child’;

κηρύσσω ‘be a herald/auctioneer, make a proclamation, announce’ (Hom.), built from κῆρυξ, -ῡκος (Hom.), Dor., Aeol. κῆρυξ, ‘messenger, auctioneer, crier’ (Sapph. *Supp.*20a.2, Pi.N.8.1, etc.).

Leaving aside phonological questions for a moment, there is one clear counterexample to the semantic pattern presented by ἀγγέλλω etc. We find μαρτύρομαι ‘call as a witness’ (A., Ar., etc.), built from μάρτυρος ‘witness’ (Hom.), instead of the expected meaning ‘act as a witness’. We should note that beside μαρτύρομαι we find a collateral denominative μαρτυρέω ‘be a witness’, built from the same base noun. It is conceivable that this variant behaviour is caused by a blocking phenomenon. But a more interesting prospect would be raised if we could establish that being a ‘witness’ does not imply an *agent* semantic role, but one is *made* a witness. This is not a question we will pursue here.

7.1.11.1. Potential Counterexamples to Sievers’ Law

It might seem that παίζω contains a heavy sequence preceding the reflex of *y: however, it is also clear that the diphthong in this stem is recent; cf. παῖς, παιδός ‘child’ (e.g. Il.2.205, Il.1.20), which goes back to a stem *pawid-; cf. Cypr. gen. sg. Φιλό-παφος from a form of the root which has not been enlarged with -ιδ-; cf. Att. παῦς from a vase inscription. The basic form could go back to a root *peH₂u-; cf. παῦρος ‘little’ < *peH₂u-ro-s, Lat. *parvus* ‘small’, *paucus* ‘few’, and perhaps *pauper* ‘poor’ (see de Vaan 2008:451).

The more important potential counterexample to Sievers’ Law is to be found in ἀνάσσω. We have a certain amount of evidence for an obstruent cluster preceding the *-ye/o- suffix, since the verb seems to be based on the stem ἄνακτ-. This stem form is as old as Mycenaean, for we find the dative form <wa-na-ka-te> = [wanaktei]. We find a corresponding stem in OPhr. *vanaktei*, but we have to accept the serious possibility that this represents a loanword from Greek, and the ultimate origin of this noun is not clear. However, it is clear that if we reconstruct a verb *wanakt-yō, it would constitute a counterexample to Sievers’ Law, unless we accept Schindler’s additional stipulations (see §2.3.4).

There is an alternative analysis. It may be that the *-ye/o- verb was built from a slightly different stem φάνακ-, which is found in the Doric form φάνακες (see Schwyzer 1953:79), which is used to designate the Dioscuri, φανάκειον ‘Temple of the Dioscuri’ (see Schwyzer 1953:350), and the neuter plural form Ἀνάκαια ‘festival of the Dioscuri’. If the *-ye/o- verb were built from this simpler stem, i.e. *wanak-ye/o-, then it would not constitute a counterexample to Sievers’ Law. In any case, we may have grounds to doubt that -σσ- should be the expected outcome

of an inherited sequence **-kty-*; on general grounds, we might rather expect the result to be a sequence **-ks-*, i.e. **anaksō* rather than the attested ἀνάσσω.

It might be argued that the primacy of the *wanakt-* stem is demonstrated by *wa-na-so-i*, which may represent the Mycenaean dative dual form of (f)ᾗνασσα ‘queen, lady’, and the adjective *wa-na-se-wi-jo* (used of vases though with an unknown meaning).³⁸ These forms are important in the interpretation of the Mycenaean *s-* and *z-*series of signs. Elsewhere in Mycenaean the *s-*signs are reserved for the outcomes of **-t^(h)(-)-y-* sequences. So they might be taken as evidence for the outcome of a cluster **-kty-* which was realized in a manner which was closer to the outcome of **-t(-)-y-* than **-ky-*. Even if this is accepted, it is not at all clear that such evidence allows us to draw any inferences regarding the formation of the denominative verb. We already know that the **wanakt-* stem existed in Mycenaean, and even with the interpretation suggested here, *wa-na-so-i* simply shows that derivative forms could be built from this stem, not that all derivatives were formed from this stem.

An issue of chronology is at stake when we discuss the verb κηρύσσω ‘be a herald/auctioneer, announce’. This is clearly a denominative from κῆρυξ, -ῡχος. The base noun has a long *ū*-vowel in most case forms, and if the verb has too, then we would reconstruct **kārūk-ye/o-*, which would constitute a counterexample to Sievers’ Law.

As we saw during our discussion of φωνίσσω, Herodian suggests that the vowel in the final syllable of the nominative singular was short, so that we have κῆρυξ rather than κήρυξ (see §7.1.9.1). In the case of φοῖνιξ, this alternation between a long and a short vowel in the paradigm was lacking any obvious explanation. For κῆρυξ, on the other hand, there is an etymological explanation for an original short vowel, and it seems likely that the nominative singular preserves an archaism. Comparative evidence shows that the velar stem and the long *ū*-vowel are innovations. In etymological terms, κῆρυξ seems to correspond to Ved. *kārú-* ‘singer, poet’ (< **keH₂ru-*); see Schrijver (1991:128), though compare the doubts of Beekes (2010:690). If the comparison holds, then in Greek a velar suffix appears to have been added, and if Myc. <*ka-ru-ke*> represents the same stem, then this suffix was added at an early stage.

However, it is not clear how this lengthening of the originally short **ū* vowel came about and, more importantly, whether it occurred at a stage prior to the creation of the verb κηρύσσω. There do not appear to be any instances in the verbal paradigm which show an unambiguous long vowel *ū*, but even if there had been, the absolutely transparent and continuing connection with κῆρυξ, -ῡχ- itself would limit the significance of such evidence. Given this uncertainty in the chronology, the value of this potential counterexample may be called into question.

7.1.11.2. πτώσσω

There is a problematic formation πτώσσω ‘skulk; shrink or flee from’ (Hom.), apparently a denominative from πτωχός ‘beggar; beggarly’, or perhaps built from the substantive πτώξ, πτωχός ‘cowering animal’.

³⁸ Insofar as *wa-na-so-i* and *wa-na-se-wi-jo* may owe their origin to a **-ya* feminine (< **-iH₂*), they probably cannot themselves be taken as clear counterexamples to Sievers’ Law, on chronological grounds.

This verb exhibits several related meanings which can give us an insight into the manner of its formation. We may broadly characterize two areas of usage, 'cower, flee from' and 'beg'. In the first semantic field the subjects are frequently animals and less frequently men (e.g. Il.21.14, with ἀκρίδες 'locusts etc.' as the subject; Il.21.26 with men as the subject): 'skulk' (Pi.P.8.87), 'flee cowering' (E.Ba.223), 'shrink from' with acc. of person (Od.22.304, Hdt.9.48), 'shun' (Il.20.427). The other main meaning 'go round begging' may be found in Od.17.227, Od.18.363, Hes.Op.395, etc.

If we suppose that this verb is denominative in nature, then we may identify at least two possible nominal bases: the noun πτώξ, πτωχός 'cowering animal' (e.g. as a substantive in Il.17.676, as an adjective in Lyc.944) and πτωχός, -ή, -όν 'beggar; beggarly' (e.g. as a substantive in Od.14.400 or as an adjective in S.OC751). In addition we find an accusative singular form πτάχα 'hare' (f.) in A.Ag.137 from a fragmentary paradigm.

If we assume that the base is πτωχός, then it is a simple matter to explain the morphology of πτώσσω, which could be formed by the addition of the *-ye/o- suffix and thematic vowel deletion. Similarly, the meaning 'go round begging' is easy to explain. However, under such an analysis, it is much harder to explain the meaning 'cower', which is typically used of animal subjects and is predominant.³⁹

On the other hand, if πτώξ 'cowering animal' were the base, then the predominant meaning of this verb could be relatively easily explained, though the sense 'go round begging' then becomes difficult. It would at least be possible to see a line of development from 'cower' to 'cringe like a beggar' *vel. sim.* However, if πτώξ was the base form, with the subsequent semantic influence of πτωχός, then it is also likely that the morphology underwent an innovation as well: πτώξ used to exhibit ablaut alternations in the root, and zero-grade forms were available—cf. πτάχα and the aor. καταπτῶχών (A.Eu.252)—so we might reasonably have expected the derived denominative verb to be formed from the zero-grade form of the root. We might suppose that, just as the uniform paradigm of πτώξ appears to be a replacement for a once alternating paradigm which incorporated zero-grade forms such as πτάχα, πτώσσω might well be a replacement for an older form *ptāssō, with the expected zero-grade root. Conceivably this could have occurred under the influence of a putative form *ptōskō, perhaps implied by πτωχάζω 'cower with fear' (Il.4.372; see Chantraine 1948:338).

The question of the antiquity of these formations takes on a new complexion when we consider the arguments put forward by Hackstein (1992), who suggests that the final velar in this root is secondary in nature, being added within the history of Greek (for discussion see §7.2.3.3). For late Indo-European, or the early history of a few daughter languages, he reconstructs a simpler form of the root *pyeH₂-w-; cf. παίω 'strike, thrust', Lat. *paviō*, πτάω 'nudge, crash into, have bad luck'. This in turn is supposed to go back to an even simpler root, *pyeH₂-, in the first instance; cf. πτοᾶν 'frighten, scare' < *pyoH₂-eye/o-, and the epic 3rd

³⁹ Contrast the semantic behaviour of πτωχεύω which *consistently* means 'be a beggar, ask (someone) for alms, beg (for something)' (intr./tr.) (e.g. Od.15.309, Od.17.11).

dual root aor. κατα-πτή-την ‘scare; cower’. If he is correct, then πτώσσω could not be particularly archaic.⁴⁰

All these considerations make it difficult to suppose that πτώσσω reflects a counterexample to Sievers’ Law *ptōk^(h)-ye/o- at a sufficiently early stage for it to affect the way in which we view the potential status of such a rule in early Greek and Indo-European.

7.1.12. Denominatives from Concrete Nouns

Concrete nouns tend to lack any kind of implicit argument structure, and for this reason they behave rather differently in semantic terms from other *-ye/o- denominatives. It is unsurprising, given the lack of an intrinsic *agent* or *experiencer* argument in the base, that the early denominatives of this category always have to add an *agent* subject.

There are two main semantic patterns. The first shows an instrumental sense in the derived verb and it means ‘use X (in a conventional way)’ or ‘do something by means of X’, where X is the base noun. For example, ἰμάσσω ‘flog’ (Hom.) ← ἰμάς, -άντος ‘leather strap, etc.’ (Hom.) is instrumental, being equivalent to ‘use a leather strap (in a conventional way)’.

Some instrumental examples do not bear directly on the question of Sievers’ Law, because the denominative verb ends up with a configuration *-CR_ε-ye/o-, e.g.:

ὀνομαίνω ‘name; call by name; speak, utter’ (Hom. etc.), built from ὄνομα ‘name; phrase, expression’ (Hom. etc.);

σημαίνω ‘show by signs, give signs’ (Hom. etc.), built from σῆμα ‘sign, token’ (Hom. etc.);

τεκμαίρομαι ‘assign, ordain, judge from signs’ (Hom. etc.; active only later, e.g. Pi., A.), built from τέκμωρ or τέκμαρ ‘mark, boundary; sign, token’ (Hom. etc.);

σπερμαίνω ‘sow with seed, fertilize’ (Hes., Plut.), built from σπέρμα ‘seed’ (Myc., Hom., etc.);

φλεγμαίνω ‘do something by means of the humour φλέγμα, i.e. ‘swell up’ or ‘make something swell’ (Hp., Ar., Pl.), built from φλέγμα ‘inflammation’ (Hom. etc.);⁴¹

ἄσθμαίνω ‘breath hard’ (Hom. etc.), built from ἄσθμα ‘short drawn breath’ (Hom., A., etc.);

⁴⁰ Beekes (2010:1253) takes a different line and considers πτώξ and πτωχός to be ultimately related and of Pre-Greek origin (evidenced by the alternation κ/χ). If correct, then the evidence of πτώσσω would be correspondingly less useful for establishing the early behaviour of the *-ye/o- suffix. However, there seems to be enough evidence for an Indo-European background for this root that we cannot take as strong a position as this.

⁴¹ The verb seems to denote an increase in size, which could represent a realization of the argument structure of an abstract noun φλέγμα ‘inflammation’. Alternatively it could represent an instrumental from the concrete noun φλέγμα, i.e. ‘do something by means of the humour φλέγμα, i.e. ‘swell up’. Liddell et al. (1996) give a meaning ‘cause to swell’ in Hp.Loc.Hom.24, but this example is equally well explained by the instrumental sense ‘do something by means of φλέγμα’, and this fact is reflected in Potter’s (1995:76–7) translation.

κυμαίνω ‘toss on waves’ (Hom. etc.), built from κύμα ‘wave, swell’ (Hom. etc.);
 χειμαίνω ‘drive by storm’ (Pi., Hdt., etc.), built from χειμών ‘winter weather, storm’ or χεῖμα ‘winter weather, cold, storm’ (Hom. etc.).

Other examples more pertinent to the question of Sievers’ Law include:

φαρμάσσω ‘treat using φάρμακα’ (Hom.), built from φάρμακον ‘drug (healing or harmful)’ (Hom.);
 μετ-οκλάζει ‘keep changing from one leg to another (of a coward in ambush)’ (Hom.), built from ὀκλάς, -άδος ‘the bent hams’ (Arat.);
 ἐπαιγίζω ‘rush (upon)’ (Hom., where the subject is a wind, e.g. Ζέφυρος), built from αἶγίς, -ίδος in the sense ‘rushing storm, hurricane’ (e.g. A.Ch.593);
 αὐλίζομαι ‘lie in the courtyard, live in a place’ (Hom.), built from αὐλίς, -ίδος ‘tent, place for passing the night’ (Hom.);⁴²
 θᾶσσω ‘sit, sit idle’ (E. etc.), built from θᾶκος ‘seat, chair’ (A. etc.);
 κλύζω ‘wash away, clean’ (Hom.), built from *klús, acc. κλύδα (f.) ‘wave’ (Nic.AL.170) (cf. κλύδων ‘wave, surf, rough water’, Hom.).

The other major pattern of formation creates verbs with an *agent* subject and a verbal meaning ‘do something to X’, where X is the base noun, which effectively constitutes the implicit *theme* argument of the derived verb. There is no obvious criterion that allows us to predict whether a particular verb will have the instrumental meaning or this *theme* object interpretation.

This category includes verbs with a *privative* sense: ‘take away X’,⁴³ e.g. βλίττω ‘cut out the comb of bees, rob someone of honey’ (Ar.), built from μέλι, -τος ‘honey’ (Hom.).

Another example of this type is ἐναίρω ‘slay in battle’ (Hom. etc.) built from ἔναρα ‘spoils’ (Hom. etc.). The *privative* status of this example is not obvious at first glance, but there seems to have been a semantic development. ‘Spoils’ are the weapons of a slain foe, and hence are not the most obvious base from which to form a verb meaning ‘slay in battle’. It seems likely that the development of this meaning proceeded along the same lines as that of a collateral form ἐναρίζω ‘strip a slain foe’ and hence ‘slay in a fight’ (Hom.). If this was the pattern of semantic development in ἐναίρω also, then we must interpret ἔναρα as a *theme* and not an *instrument*.

It seems likely that ῥύπτω, ῥύπτομαι ‘clean, wash (especially with soap or lye)’ (Ar., Antiph., etc.) is a denominative based on ῥύπος ‘filth, uncleanness’ (Hom., Semon., A., etc.). The verb essentially means ‘remove filth’.

Frisk (1991:900) supposes that τίλλω ‘pluck, tear’ (Hom. etc., aor. ἔτληα) results from the dissimilation of a denominative *apo-(p)tillō or *para-(p)tillō built from πτίλον ‘fluff, down’. At any rate, there is no comparative evidence for an inherited root *til-. If this analysis is right, then this exhibits the same *privative* semantics.

⁴² An alternative would be to suppose that this was an -ίζω verb derived from αὐλή ‘courtyard’ (e.g. Il.4.433).

⁴³ In English we have denominatives of this type also; cf. ‘Bill skins the rabbit’, meaning ‘Bill deprives a rabbit of its skin’.

This category also includes *locatum* verbs: ‘supply X’;⁴⁴ e.g. κορόσσω ‘furnish someone with a helmet; equip; make crested’ (Hom.), built from κόρυς, -ῦθος (f.) ‘helmet, scalp of a lion’ (Hom.).

Also belonging to this category is θωρήσσω ‘arm with a θώρηξ’, med. ‘arm one-self; fortify oneself (with drink)’ built from θώρηξ, θώρηκος ‘armour’ (Hom.); cf. Aeol. θώρραξ, Att. θώρᾱξ, gen. θώρᾱκος (e.g. Ar.Ach.1133), and perhaps Myc. <to-ra-ke>.

In other cases the derived verb seems to mean ‘do what one typically does to X’, where X is the base noun in a *theme* interpretation. For example, we cannot suppose an instrumental meaning for λαχαίνω ‘dig up’ (Hom., A.R.) built from λάχανον ‘vegetable, garden herbs’ (usually plural; Ar., Pl., etc.); the act of digging does not require the use of vegetable implements. Typically one might dig up vegetables or herbs, but in this case they would be *themes*.

Similar behaviour is shown by χαράσσω ‘make pointed, sharpen; notch; scratch’ (Hes. etc.), built from χάραξ, -ᾱκος ‘pointed stake, vine prop, pale’ (Ar.). It seems clear that ‘making pointed’ and ‘sharpening’ are the things one might do *to* a stick rather than the things one might do *with* a stick.

It seems likely that προΐσσομαι means ‘beg, ask for a gift’ *vel sim.* and also belongs to this semantic class, being built from προΐξ, gen. προΐξός (f.) ‘gift, present’ (Hom.). The verb itself, apart from occurring in grammarians, is only found in a fragment of Archilochus (130), where the precise meaning is not totally self-evident: προτείνω χεῖρα καὶ προΐσσομαι ‘I stretch out my hands and προΐσσομαι’. But we also find the corresponding agent noun προΐκτης in Homer meaning ‘beggar’, which helps to clarify the meaning.⁴⁵

What is notably lacking in Greek is anything resembling the very productive class of location verbs found in English: ‘Bill bagged the horse’, meaning Bill put the horse in a bag. It seems that in Greek the base noun always fulfils an implicit *theme* or *instrument* semantic role.

7.1.13. Semantic Anomalies in Denominatives from Concrete Nouns

Not all examples in this class behave in an entirely predictable way. While the relevance to Sievers’ Law is tangential in several of these cases, it is still important to present this information, so that the validity of any inferences from wider semantic patterns can be shown to have a solid basis.

7.1.13.1. Multiple Meanings

The semantic properties of λυμαίνομαι are slightly unusual. It can mean ‘clean off dirt’ (Hp.) or ‘outrage, maltreat’ (Hdt., S., etc.), built from λῦμα, -ατος ‘water used in washing; dirt from washing, moral filth’ (A., Eur.). However, the ambiguity of

⁴⁴ In English we have denominatives of this type also; cf. ‘Bill saddled the horse’, meaning ‘Bill put a saddle on the horse’.

⁴⁵ With quite a different sense we find the exclusively future form καταπροΐξομαι ‘will escape unpunished’ in Archil., Hdt., and Ar. Chantraine (1999:940) suggests that it might have been formed from the adv. προΐκα ‘as a free gift’.

the verb is precisely matched by the ambiguity of the base noun. On the one hand, the verb can have the meaning ‘I [*agent*] do what someone typically does with water used in washing [*instrument*]’; this gives the sense ‘clean off dirt’. On the other hand, its meaning can be closer to ‘I [*agent*] do what someone typically does with filth [*instrument*]’, from which I believe the ‘outrage/maltreat’ sense arises (in other words, one sullies someone else with filth).

7.1.13.2. *Lost Meanings*

It is generally supposed that Hom. *κραιαίνω* ‘complete, end; rule’ represents a denominative formation. It has a variant *κρᾶίνω* in Homer, and if we assume that this is the more ancient form (cf. Hom. aor. *κρηῖναι*), then we could reconstruct a verbal formation $*\hat{k}_rH_2sn\text{-}ye/o\text{-}$ built from an *n*-stem noun $*\hat{k}_rH_2\text{-}s\text{-}n\text{-}$ ‘head’, found in gen. sg. *κρᾶτος* ‘head’ ← $*\hat{k}_rH_2\text{-}s\text{-}n\text{-}\acute{o}s$; cf. Vedic gen. sg. *śīrṣnás*.⁴⁶ Under such an analysis, *κραιαίνω* would have to represent an innovation, and we could understand the diphthong in the first syllable as being due to the influence of *κράινω* ‘accomplish’, which was itself probably an analogical innovation based on the contracted aor. *κρῆναι* (see Beekes 2010:768).

The semantics of this denominative are hard to fully understand, and this may be because there have been subsequent developments in the verb and/or the base noun. In the texts which we have, *κᾶρη* essentially means ‘head’; periphrastically it may stand for a person (e.g. S.OT40), or metaphorically it can be used of mountain peaks (e.g. Hes.Th.42). It is not at all clear how a verb meaning ‘rule over’ could have developed, unless the base noun could somehow have meant ‘leader’ (just as the semantically closely related *κεφάλαιος* ‘of the head’ can be used of persons to denote a chief or leader, e.g. Eup.93). But imputing such a meaning to *κᾶρη* is speculative. Similarly, it seems possible that *κᾶρη* could have borne the sense ‘outcome, issue’ at some stage, since we find both *κραιαίνω* ‘complete, end’ and *καρδοκέω* meaning ‘wait for the outcome’ (see Nussbaum 1986:58 n. 26). But we run a very real risk of circularity in our reasoning if we try to deduce the original possible meanings of a base noun from the meaning of its derivatives, while at the same time attempting to deduce the range of possible relationships that can exist between a base and its derivatives. If we simply confine ourselves to the meanings which are attested, then the evidence cannot be used to support or to undermine any particular semantic theory, since there is no obvious direct point of contact between the base and derived verb, and we either have to conclude that at some stage there was no fixed semantic relationship, or that there have been subsequent semantic developments obscuring any such patterns.

7.1.13.3. *The Development of New Meanings*

We can see that inchoative meanings can develop at a relatively late stage. The Hellenistic denominative *πορφύρω* ‘dye purple, make red’ has an instrumental

⁴⁶ We should note that Nussbaum (1986: esp. 200) argues that the Vedic and Greek word equation arises out of independent developments, but this does not especially affect the reconstruction so much as the degree of antiquity which could be attributed to it.

sense, having been built from πορφύρα, Ion. -ῆ, (f.) ‘purple dye, etc.’ (Sapph., Hdt., A., etc.), and it is attested rather late to be included in this study.⁴⁷ But this verb is of interest because it can also mean ‘grow red’ (e.g. Theoc.5.125). The inchoative semantics may be down to the fact that the verb is likely to be a late creation. Even leaving aside the late attestation, it is also a rather irregular formation in other respects in that, at an early stage, we would not expect deletion of the final -ῆ in the stem of the nominal base with the addition of *-ye/o-, but rather the formation of an -άω verb instead.

7.1.13.4. *The Development of an Impersonal Expression*

It seems clear that ψαλάζω ‘drip, spray, drizzle’ (Ar. etc.) is a denominative based on ψαλάς, -άδος ‘drop (esp. of rain)’ (Hdt. etc.). For the most part we find clouds or other atmospheric conditions as the verbal subject (e.g. Ar. Nu.580). It does not seem too much of a stretch to say that the clouds resemble an *agent* with the ‘drops’ constituting an implicit *instrument*. This essentially agrees with the instrumental sense typical of *-ye/o- denominatives formed from substantives. However, in one instance, in a fragment of Nicophon (fifth–fourth century), we appear to have ψαλαζέτω ἄρτοισι ‘let it rain loaves’ used impersonally. It is easy to see how such a usage might be a secondary development, given the usual tendency of ‘weather’ expressions in Greek and indeed in many languages to be realized as impersonal verbs.

7.1.13.5. *An Anomalous Theme Subject*

From γάραρα ‘heaps, lots’ (Aristomen., Alc.Com.) we find what seems to be a denominative γαργαίρω ‘swarm, teem with (people, corpses, or objects of various kinds)’ (Cratin., Ar., Sophr., Tim.). It is usual to regard γάραρα itself as a reduplicated perhaps onomatopoeic formation, and a parallel though independent formation in Lithuanian is cited; cf. Lith. *gurgulys* ‘tangle of threads, swarm (of birds)’, *gurguolė* ‘mass (of people, bees)’ (see e.g. Beekes 2010:261).

The denominative verb is an exception to the semantic patterns which we have identified thus far, since we find πόλις ‘city’, οἰκία ‘home’, ἐστία ‘home, hearth’, and πόντος ‘the sea’ seemingly as *theme* subjects of γαργαίρω. The verb and the base are almost exclusively confined to comedy, and it would be tempting to suggest that both formations are an ‘expressive’ comic creation of some kind, were it not for the fact that we also find γαργαίρω in the papyrus of Timotheus of Miletus (*Pers.*107). It is not clear whether this example can be satisfactorily explained, given the limited attestation. It remains as an exception, but perhaps not the most damning exception imaginable.

7.1.14. Denominatives from Concrete Nouns and Sievers’ Law

Many relevant examples from this category would have had a light sequence preceding the *-ye/o- suffix, such as ἱμάσσω (< *himnt-ye/o-), βλίττω

⁴⁷ Note that this is probably to be distinguished from the Homeric verb πορφύρω ‘boil, surge’ (see §6.4.2).

(< **mlit-ye/o-*), χαράσσω, ῥύπτω, τίλλω, κορύσσω, φαρμάσσω, μετ-οκλάζει, ἐπαιγίζω, ἀλλίζομαι, and κλύζω.

We seem to find a heavy sequence preceding **y* reflected in θωρήσσω, if it goes back to **tʰōrāk-ye/o-*, and if this is old, then it would clearly constitute a counterexample to Sievers' Law. It is interesting that we never find **tʰōrāssō*/**tʰōrāttō*, or the verbal stem **tʰōrāk-*, even in Attic authors.⁴⁸ It is used in Homer, in Ionic prose (e.g. in Hp.), and in Attic tragedy in an Ionic form. So it seems to be Ionic and poetic in nature. In Attic prose we find θωρακίζω instead (e.g. X.Cyr.8.8.22). We may wonder whether θωρήσσω had any general currency in spoken Greek outside the Ionic dialect. This of course raises the question of whether this verb represents a dialect-specific creation. If it does, then a formation with the suffix **-ye/o-* is ruled out and we would have to suppose that θωρήσσω was created analogically on one of the many models which would have been available for forming a denominative from a velar-final nominal stem.

There may be an additional hint that θωρήσσω may be a replacement for an even older form in the same meaning; there appear to be traces of a morphologically simpler verb with the same meaning in the aor. pass. pple θωχθεῖς in S.Fr.173 and the Doric infinitive θαχθῆμεν (Hsch).⁴⁹ But exactly what θωρήσσω is a replacement for, and when this might have happened, remains largely a matter of speculation.

We noted that προῖσσομαι 'beg, ask for a gift' is probably a denominative built from προῖξ, gen. προῖκος (f.) 'gift, present' (Hom.). However, it has also been suggested the verb might be primary, and together with the noun goes back to the same root as ἵκω 'come to, reach', meaning something like 'reach/grab for'. In either case, if these forms are ultimately related to ἵκω, then we encounter the difficulty that the original length of the **i* vowel is in some doubt. We find a long [ī] in ἵκω and ἵγμαι, and if, by any chance, προῖσσομαι also had such a long vowel, then the prospect of a counterexample to Sievers' Law is inevitably raised. However, we find a short [i] everywhere else, e.g. in aor. middle ἵκέσθαι and nominal formations such as ἱκανός. An explanation for the variability might be forthcoming if we accept the etymology linking ἵκω with Lith. *siekiu* (*siekti*) 'reach out for'. LIV² (522) reconstructs a root **seyk-*,⁵⁰ and a reduplicated formation **si-sik-* underlying ἵκω. We do not have direct evidence for the length of the vowel in προῖσσομαι, but if LIV²'s reconstruction is right, then, regardless of the length of the *i*-vowel at various periods within Greek, this form could not have constituted a counterexample to Sievers' Law at any stage when we might have expected automatic syllabicity alternations to still be capable of operating.

On a superficial level, θᾶσσω (from θᾶχος) seems to demand the reconstruction of a **-ye/o-* denominative with a heavy sequence preceding **y*. But it is clear that the long vowel here is not very old, and is based on a contraction. In epic we find θᾶάσσω (e.g. Il.9.194) < **tʰāwak-yō*; the Hesychian gloss

⁴⁸ The only exception I know of may be found in Pindar, who uses an aorist passive form θωραχθεῖς. However, this could simply be an adaptation of Hom. θωρηχθεῖς.

⁴⁹ The form θωχθεῖς cannot be a contraction of θωρηχθεῖς, *pace* Beekes' (2010:570) tentative suggestion.

⁵⁰ In order to explain the acute accentuation in the Lithuanian evidence, LIV² has to assume a lengthened grade root.

θάλακον· θάλακον ἢ θρόνον ‘chair or throne’ supports the notion that θάλακος is from **t^hawakos*, if *-β-* preserves **w*. The ultimate origins of the base form are totally unclear; Beekes (2010:529) ascribes this word to Pre-Greek.

We find a number verbs in this class with a verbal stem terminating in *-ιζω* or *-υζω* which arise from base nouns with the suffixes *-ιγγ-* and *-υγγ-* respectively:

στροφαλίζω ‘twist’ (Hom.), built from στροφάλιγξ, *-ιγγος* ‘whirl, eddy’ (Hom.);

φορμίζω ‘play the φόρμιγξ’ (Hom.), built from φόρμιγξ ‘lyre’ (Hom.);

συρίζω ‘play the syrinx’ (Hippon. etc.), built from σύριγξ, gen. *-ιγγος* ‘shepherd’s pipe’ (Hom.);⁵¹

ρόθαμίζω ‘sprinkle’ (Opp., Nonn.), built from ροθαμίγξ, *-ιγγος* ‘drop, spot of dust’ (Hom. etc.);

σαλπίζω ‘blow the trumpet’ (X. etc.), built from σάλπιγξ ‘trumpet’ (Hom.);

στηρίζω ‘support; establish; lean on’ (Democr., E., etc.), built from στήριγξ ‘support’ (Lys., X., etc.);

λαρούζει· βοᾷ. ἀπό τοῦ λάρυγγος ‘cries, after λάρυγξ’ (Hsch.).⁵²

If we reconstruct **stroph^haling-ye/o-*, **ph^horming-ye/o-*, **suring-ye/o-*, **rat^haming-ye/o-*, **salping-ye/o-*, **stēring-ye/o-*, and **laru^hng-ye/o-*, then these verbs constitute violations of Sievers’ Law, for they exhibit a heavy sequence preceding a suffix **-ye/o-* rather than **-iye/o-*. However, we should note that in morphological terms it is out of the question that a noun with a stem in *-υγγ-* or *-ιγγ-* was inherited from Indo-European, and so the antiquity of the **-ye/o-* verbs derived from such formations is highly suspect, and the reliance we can place on them is minimal.

7.1.14.1. φρίσσω

We find an apparent counterexample to Sievers’ Law in φρίσσω ‘be rough; shudder with fear or awe’ (Hes.), which seems likely to be a denominative from the noun φρίξ, gen. φρίχος ‘ruffling of a smooth surface, ripple’ (e.g. on the sea, in Il.23.692), ‘shivering fit’ (Hp.Morb.2.68). It seems difficult to escape the conclusion that φρίσσω must go back to **p^hrik-ye/o-*, probably < **b^hriHk-*; cf. Welsh *brig* ‘top of a tree, twigs, branches; upper reaches; ears of corn; apex, acme; hair on the head’ < **briko-*; see LIV² (93) which reconstructs a root **b^hreyHk-* or **b^hryeHk-* (though no full-grade forms are to be found).⁵³

⁵¹ We should note in passing the analogical replacement συρίττω ‘play the σύριγξ (pipe), make a whistling noise’ (Pl. etc.).

⁵² It has been pointed out that it is somewhat suspicious that λάρυγξ is phonologically very close to the almost synonymous φάρυγξ ‘throat’. Furthermore, the nasal in λάρυγξ is sometimes absent; cf. the collateral nominal formation λάρυγος (EM 788, 37). We cannot be sure whether the denominative was formed from such a stem lacking a nasal, even if we were convinced that λαρούζω was very old in the first place. The confidence which can be placed in this example is minimal.

⁵³ One might argue that φρίσσω should be analysed as a primary formation, but given that there is a root noun in Greek and an isolated nominal formation in the only possible Indo-European cognate, it seems probable that this was a nominal rather than a verbal root. It should become clear that the analysis presented here could be adapted in a straightforward fashion, if one did consider φρίσσω to be primary.

The semantics of *φρίσσω* are problematic. If it is denominative, then we must consider its relationship with *φρίζ*. If we take *φρίζ* to be a concrete noun ‘ripple’, then we might expect an instrumental meaning *‘do something with a ripple’ or perhaps *‘cause a ripple’, etc. If we take *φρίζ* to be an abstract noun, then the situation is not really changed: we would expect the implied *agent* argument to be realized as the subject.

But in fact the verb means ‘be rough or uneven on the surface’. The subject of the verb in this sense is fairly clearly not agentive in terms of its semantic role. It would be better to interpret this verb as having a *theme* subject—a configuration that I have argued to be impossible for a *-ye/o- verb. This supposition is given support by the selection properties of this verb; it regularly takes as subject inanimate nouns such as *ἄρουραι* ‘fields’ (e.g. *Il.*23.599), *τρίχες* ‘hair’ (*Hes.Op.*540), a tree (e.g. *Pl.Eleg.*25), *ὄμβροι* ‘rain’ (*Pi.P.*4.81), *στάχυς* ‘an ear of corn’ (*E.Supp.*31, aor.), etc., as well as being used of groups of people acting en masse (e.g. *Il.*13.339, aor.). These inanimate nouns are not archetypal *agents*.

This verb is attested with a second main meaning ‘shudder, shiver’ (e.g. as an effect of the cold, in *Hes.Op.*512, or of fear, in *S.El.*1408, aor., or of passion, in *S.Aj.*693, aor.). This usage could be explicable in terms of the second meaning of *φρίζ*, ‘shuddering fit’ (e.g. *Hp.Morb.*2.68). The subject of the verb could realize an *experiencer* argument in the base. Alternatively, we could compare *φρίκη* ‘shuddering fit’ (e.g. *Hp.Aph.*5.61). However, it is unlikely that *φρίκη* can explain the other meanings of the verb satisfactorily. Nor would such a derivation be morphologically typical; we would expect a *-ye/o- derivative of *φρίκη* to be **p^hrikáyō* < **p^hrikáyō*.

Given the contrast in semantic behaviour between *φρίσσω* and the other *-ye/o- denominatives we have been studying, we are entitled to be concerned about the typical view that *φρίσσω* is a straightforward *-ye/o- denominative. It seems attractive to entertain the idea that *φρίσσω* was actually an analogical formation built at a time when the rules governing the semantics of denominative verbs were different. This proposition seems difficult to prove, but the use we may make of this verb in any argument about Sievers’ Law is at least diminished by this inconsistency with our other evidence.

7.1.14.2. *σκήπτομαι*

We find another seemingly denominative verb with problematic semantics:

σκήπτομαι ‘lean on a staff; allege on one’s own behalf’ (*Hom.* etc.), act. *σκήπτω* ‘prop one thing against another’ (e.g. *A.Ag.*310).

The active verb has a second meaning ‘allow to fall, hurl upon’ (e.g. of a *βέλος* ‘dart’ in *A.Ag.*366) and conversely ‘to fall’ (e.g. *πέδοι σκήψασα* ‘having fallen on the plain below’, *A.Pr.*749, *A.Ag.*310).

There are many puzzling points relating to this verb. Frisk (1973:728–9) and Chantraine (1999:1016–27) supposed that *σκήπτομαι* should be considered to be a denominative from a nominal root *σκηπ-* (< *σκάπ-*), which may be identified in *σκηπᾶνιον* (e.g. *Il.*13.59) and *σκήπ-τρον* ‘staff, stick, sceptre’ (e.g. *Il.*18.416,

Il.9.156). The Doric form *σκάπος· κλάδος καὶ ἄνεμος ποιός* ‘branch, and wind of a certain kind’ (Hsch.) may provide the most pertinent evidence for the base of *σκήπτομαι*. We may compare Lat. *scāpus* and Alb. *shkop* ‘stick, sceptre’.

However, if this is a denominative *-ye/o- verb from a noun meaning ‘stick, sceptre’, with the semantic restrictions expected for a *-ye/o- verb, then we would expect it to exhibit an instrumental sense ‘use a staff, stick’, with an *agent* subject. The meaning of the active ‘prop one thing against another’ or the middle form ‘lean upon a staff (for oneself)’ → ‘allege on one’s own behalf’⁵⁴ could be understood in this fashion. An instrumental interpretation could even provide the meaning ‘hurl’, since this is the kind of thing one might do with a stick. However, it does not explain the intransitive meaning ‘fall’, which seems to involve a *theme* subject. This last meaning appears to be incompatible with the semantics of the *-ye/o- suffix as we have come to understand it.

An alternative analysis of the stem is possible. We find a parallel stem *σκάπτ-* which we can see in Dor. *σκάπτον* (e.g. Pi.O.7.28 = *σκήπτρον*) and in the Att.-Ion. compounds *σκηπτοῦχος* ‘bearing a staff or sceptre’ (e.g. Il.2.86) and *σκηπτουχία* (e.g. A.Pers.297), cf. *σκηπτοφόρος* (AP.7.428). Seemingly related to the root *σκάπτ-*, *σκηπτ-*, reflexes of a form **skāpto-* are attested throughout Germanic (excluding Gothic), e.g. OHG *skaft*, ON *skapt*, etc., albeit with a difference in root vocalism. If Greek inherited a root with a final dental, then it becomes unnecessary to explain the present form *σκήπτω* as a *-ye/o- verb. It may simply have a thematic present stem form. This being the case, the highly variable semantics of the present are not necessarily problematic, since thematic presents do not have the same semantic restrictions as *-ye/o- verbs.

7.1.15. Conclusions

We have seen that *-ye/o- denominatives are formed from a variety of nominal stem types, and there are a number of different morphological patterns of formation. The ability to form denominatives from nominal stems without any alteration of that stem obviously allows plenty of opportunities for counterexamples to Sievers’ Law to arise, as does the ability to form denominatives by deleting the thematic vowel. However, it became clear at an early stage of the investigation that not all categories of evidence would be equally relevant to the questions surrounding the earliest rules governing semivowel syllabicity.

We saw that denominatives from *s*-stems almost invariably showed a light sequence before *-ye/o-, but we did not treat the examples in detail because the evidential value of the category is of a secondary nature, given the difficulty in distinguishing, even in principle, between the outcomes of a sequence *-s-ye/o- and *-s-iyē/o-. We argued that the only two examples with a heavy sequence before the verbal suffix, *ἰδρώω* and *ῥιγώω*, were morphologically and phonologically problematical and probably analogical in nature.

We did not discuss the formation of denominatives from nouns in -εύς in detail, because the vast majority of the evidence is definitely secondary in nature, and it is not entirely clear how the remainder was formed. Furthermore, the probably

⁵⁴ I.e. put something forward as a support.

non-inherited character of the base nouns undermines the evidential value of the derived verbs.

The same difficulty undermines the evidence of the denominatives derived from stems in *-ιγγ-* and *-ογγ-*. The non-Indo-European character of the base forms makes us disinclined to attribute any great antiquity to the derived verbs.

Many discussions of individual etymological details were required to reach a proper analysis of examples such as ἰμάσσω, θωρήσσω, ἀνάσσω, μαλάσσω, προΐσσομαι, φοινίσσω, κηρύσσω, παίζω, and θάσσω. But some interesting consequences flowed from more general observations about the principles according to which denominative **-ye/o-* verbs were formed.

It became clear that the ongoing nature of **-ye/o-* denominative formation in Greek makes it difficult to establish whether any particular formation is of very great antiquity, or was formed with the **-ye/o-* suffix but at a relatively late stage, or indeed was formed by analogy after **-ye/o-* disappeared as a suffix altogether. A couple of factors help us to set up a partial chronology, which allows us to identify some (but not all) of the verbs which were, in all likelihood, formed at a relatively late stage.

The time depth involved in this denominative formation becomes clear when we notice that different rules of resonant syllabification appear to have applied at different periods. This may account for the apparently anomalous behaviour of ἐλαύνω (if from **elawn-ye/o-*), ἔχραισμε (if from **e-kʰraysm-ye/o-*), and perhaps even οἰκτίζω (if from **oyktr-ye/o-*). We can account for the failure of the resonant to vocalize in these examples by assuming that they were not formed at the earliest possible stage. At the same time, such a conclusion robs these examples of most of their significance as counterexamples to Sievers' Law.

The denominative verbs we examined have some well-defined semantic and syntactic characteristics. That is not to say that the meaning of such denominative verbs is absolutely predictable, but we can specify some constraints on their meaning, their syntax, and the way in which the argument structure of the base is mapped onto the grammatical roles in the sentence. The subject of a **-ye/o-* verb generally spells out a semantic role from the base. If multiple semantic roles are available, then an argument hierarchy seems to operate which privileges *agents*. The subject of an active **-ye/o-* verb only spells out a semantic role from the base if it is an *agent* or an *experiencer*. Otherwise an *agent* argument is *added*, which yields factitives from certain adjectives and verbs with instrumental or 'theme-based' semantics from concrete nouns.

Inchoative meanings, *theme* subjects, and impersonal expressions among active **-ye/o-* verbs only develop within the historical period, and do not appear to be inherited, as we saw in the case of μελαίνω, πορφύρω, and ψαχαζέτω.

It seems historically significant that examples with thematic vowel deletion showed exactly the same range of semantic behaviours, and involved the same constraints as those examples in which the addition of the **-ye/o-* suffix resulted in the reduction of the stem to a zero-grade form. This is suggestive and points towards the fact that both types are equally old—a proposition also supported by the existence of both morphological types in Indo-Iranian.⁵⁵

⁵⁵ See Tucker (1988, 2004).

It seems that certain changes in the semantic behaviour of *-ye/o- denominatives can be associated with formations which we would consider to be innovations on independent grounds, e.g. φαείνω with the meaning ‘shine’ rather than ‘make shine’.

We also find what seem to be semantic innovations in morphological categories that seem to be innovative. It is in the very rare and problematical class of denominatives formed from compounds that we find the semantically unexpected εὐφραίνω ‘make happy’ and ἐγγλύσσω ‘taste sweet’. The weak nature of the evidence for *-ye/o- denominatives formed from compounds also played a role in establishing the proper analysis of the apparent counterexamples to Sievers’ Law ἀγρώσσω and δρυφάσσω.

In my view we may take an additional step and claim that the semantic inconsistencies and peculiarities shown by φρίσσω, πτώσσω, and σκήπτομαι actually undermine their status as clear examples of *-ye/o- formations, and thereby undermine their status as counterexamples to Sievers’ Law.

7.2. PRIMARY FORMATIONS

Greek certainly inherited from Indo-European the capacity to form present tense stems from verbal roots using the suffix *-ye/o-. As we shall see, many languages agree in attaching the suffix to the zero grade of the root. We can even reconstruct a substantial number of specific collocations of root and suffix inherited from Indo-European itself (see §7.2.1). In addition, we need to reconstruct for Indo-European some *-ye/o- presents from full-grade verbal roots. We have already noted that if there was a productive full-grade formation, then we would expect a great many common Indo-European root shapes to produce heavy sequences before the suffix (see § 6.3.2.1). Therefore, we shall be especially concerned with trying to establish the nature and scope of this formation in Indo-European (§7.2.3).

Greek itself exhibits a diverse range of vocalisms in the formations which appear to descend from these Indo-European types. In order to gauge the consequences of reconstructing each of these types of formation for a period in which Sievers’ Law could still have been in operation, it is necessary to trace the development of the primary *-ye/o- presents from their Indo-European origins onwards.

7.2.1. Indo-European Zero-grade *-ye/o- Formations

Greek inherits some Indo-European *-ye/o- forms directly, and others are subsequently made according to the same principles of formation. It is difficult to be certain whether any given *-ye/o- present found in Greek is actually an Indo-European form, even if it contains a well-attested Indo-European root. The antiquity of specific formations will be highly relevant to our discussion of Sievers’ Law. So it is useful to categorize *-ye/o- verbs according to the strength of the evidence lying behind them.

We will also categorize examples according to root shape, and the fairly obvious point will emerge pretty quickly that the zero-grade form of almost all possible Indo-European root shapes constitutes a light sequence from the point of view of Sievers' Law. This having been shown, it might have been sufficient to leave the reader with a representative sample of illustrative examples. But instead I have elected to give *all* the examples I can find, no matter what their etymological provenance might be, within the chronological limits set out earlier. The main reason for doing this is that there is a remarkable contrast in the constituency of roots that form zero-grade **-ye/o-* verbs and those that form full-grade **-ye/o-* verbs, and I shall argue that this difference has a bearing on the history and antiquity of the full-grade formation.

7.2.1.1. Inherited Examples

We will begin by looking at examples for which there are word equations, i.e. **-ye/o-* formations from the same root with the same root vocalism attested as such in Greek and in at least one other language group. These will be organized according to the shape of the root in question.

In roots with a zero grade of the shape **(C)CR-*, we find that the root-final resonant becomes syllabic in preference to the semivowel in the **-ye/o-* suffix.⁵⁶ The outcome is that we always have **-ye/o-* following a root ending in a syllabic resonant, rather than **-iye/o-*:

μαίνομαι 'rage' < **m̥n̥-ye/o-*, cf. Ved. *mányate*, OIr. *-mainethar*⁵⁷ (*LIV*² 435–6f. s.v. **men-*);⁵⁸

βαίνω 'step' < **g^wm̥-ye/o-*, cf. Lat. *veniō*, ?Alb. *n-gan* (*LIV*² 209–10 s.v. **g^wem-*);

ἄλλομαι 'leap' < **sl̥-ye/o-*, cf. Lat. *saliō*, *-īre*, and with the same root Ved. *sisarṣi* (*LIV*² 527 s.v. **sel-*, followed by Beekes 2010:72).⁵⁹

There could be a trace of a **-ye/o-* present in φθίει· θνησκει 'die' (Hsch.), which would match Ved. *kṣíyate*, all from the root **d^hg^wh₂ey-*; cf. φθίνω, aor. ἔφθιτο, Ved. *kṣināti*, YAv. *jināiti*, etc. (*LIV*² 150–1). However, φθίει does not guarantee a **-ye/o-* present in phonological terms; we would feel obliged to posit it only if we believed that a thematic present next to an athematic aorist was not a likely situation early on. However, without knowing how old φθίει is, there is no firm basis for such a judgement. Secondly, φθίει is an emendation for φθῑῃ in the codex. It seems unwise to build too much on this.

⁵⁶ This outcome can be modelled nicely by Schindler's (1977:56–7) syllabification rule, whereby resonants are underlyingly non-syllabic, but they become syllabic when they occur between two non-syllabic segments (which can include other resonants). Crucially, this procedure operates iteratively from right to left (see Chapter 3 n. 39).

⁵⁷ Compare also OAv. *mainiēntē*, OIr. *muinithir*, Lith. *miniù*, Lat. *re-minīscor*.

⁵⁸ For these purposes I have adopted *LIV*²'s conventions regarding the use of +,], ?, and *.

⁵⁹ However, de Vaan (2008:535–6) has doubts about the shape of the root, since *LIV*²'s reconstruction requires us to accept that **sl̥-* > Lat. *sal-* before **i/y*, while **r̥* before **y* does not undergo any similar change in Lat. *morior* or *horior*. Another possibility would be to suppose a root **sH₂l-*, but this is not consistent with the Sanskrit evidence. I will follow *LIV*²'s reconstruction here.

We might have an indirect attestation of an inherited *-ye/o- verb in αἰρέω ‘take’, if it is rebuilt from **hairō* < **sr-ye/o-*; cf. Latv. *siŗu* (*sirt*) ‘loot’, which would also come from a *-ye/o- formation (see LIV² 535 esp. n. 2). Vine (1998:48–9) argues that ἐξ-αἶρ-ετος contains the basic root -αἶρ- with a suffix -ετος; αἰρέω would have to result from a reanalysis of a stem αἶρε/o-. Outside the verbal system, we may also compare Mĭr. *serb*, Welsh *herw* ‘plundering’, and Hitt. *šāru-* ‘booty’ < **sór-u-* (see Kloekhorst 2008:738–9).

We find a good deal of evidence for verbs formed from roots with a zero grade of the shape *(C)CRC- which clearly constitute light sequences in Indo-European from the point of view of Sievers’ Law:

ἀτυζόμενος ‘be bewildered’ (Hom.) < **H₂tug-ye/o-*, cf. Ved. *tujyáte*, and with the same root Hitt. *ḫatuki-* ‘terrible’ (LIV² 286 s.v. **H₂tewg-*; Kloekhorst 2008:336–7);

-μύσσω, -ομαι ‘sneeze’ (Hp. Vict. 370, E., Pl., etc.) < **muk-ye/o-*, cf. Ved. *múcyate* (LIV² 443–4 s.v. **mewk-*);

νίζω ‘wash’ (Hom.) < **nig^w-ye/o-*, cf. aor. νίψα, fut. νίψω; OIr. -*nig*, pass. *ne-gar*; from the same root compare Skt *nenikté*, YAv. *naēnižaiti* (LIV² 450 s.v. **neyg^w*, Beekes 2010:1020),⁶⁰

στίζω ‘tattoo, stitch’ < *(s)*tig-ye/o-*, cf. OHG (?) *sticken* (LIV² 592–3 s.v. *(s)*teyg-*); for the root, cf. Lat. *īnstigāre* ‘incite, provoke’;

σχιζω ‘cleave’ < **sk^hid-ye/o-*, cf. ?Ved. *chidyate* (LIV² 547–8 s.v. **sk^heyd-*),⁶¹ for the root, cf. Lat. *sci-n-dō*, Lith. *skiedžiu* (with a full-grade root);

τύπτω ‘beat’ < *(s)*tup-ye/o-*, cf. CLuw. *dūpiti*,⁶² Alb. *për-typ* (LIV² 602–3 s.v. *(s)*tewp-*); for the form of the root, cf. Lat. *stupeō* ‘be/become numb, amazed’;

φράσσω/φράττω ‘fence in, defend, fortify, block up’ < **b^hrk^w-ye/o-*, cf. aor. ἔφραξα/Att. ἔφαρξα; Lat. *farcio* ‘fill, stuff’, *frequens* ‘occurring at close intervals’ (LIV² 93–4); a *-ye/o- present is supported by evidence from two language families but the root is found nowhere else;⁶³

Myc. *wo-ze* ‘do’ < **wrg-ye/o-*, cf. Goth. *waúrkan*, YAv. *varaziieiti* (LIV² 686–7 s.v. 2.**werġ-*).

As we have already noted (§3.8.2), the example <*wo-ze*> raises an interesting problem of chronology. If we assume that the Mycenaean sign <*ze*> indicates

⁶⁰ We should note the clearly secondary present νίπτω, rebuilt from the aorist or future forms.

⁶¹ LIV² (548) suggests that a voiceless aspirated velar could arise through Sieb’s Law.

⁶² Compare Lyc. *tubidi*.

⁶³ The semantics of the Greek and Latin verbs do not quite match; Beekes (2010:1588–9) is sceptical of any connection. But we could assume a semantic development in Greek such as ‘stuff’ → ‘block up’ → ‘fence in’ → ‘fortify’. The labiovelar is reconstructed on the basis of the supposed relationship with *frequens* (see de Vaan 2008:202, 242).

LIV² (78–9) also suggests a connection with the root **b^herg^h*, which gives Hitt. *parkiyanzi* ‘raise, elevate’, Toch. *pärk-*, Ved. *barh-* ‘make strong/big’, etc. This seems an equally plausible connection semantically, and it is difficult to decide between the reconstructions. From the narrow point of view of investigating Sievers’ Law effects, it does not matter which etymology we accept, since the putative reconstructions **b^hrk^w-ye/o-* and **b^hrg^h-ye/o-* should be metrically equivalent under any theory proposed so far.

a product of palatalization, then, under certain assumptions, we might read [worzei], which appears to presuppose a form **worg-ye/o-* < **wrġ-ye/o-*. As we saw, this apparent secondary counterexample to Sievers' Law is easily resolved by supposing that syllabic **r* survived until after the breakdown of Sievers' Law (assuming for a moment that Sievers' Law was inherited in the first place). Such a proposition is not inconsistent with anything else we know of the chronology of Greek sound changes.

We may have an example with a zero-grade root of the shape *CRRC-*. In such situations it is the second resonant which vocalizes, and, in consequence, Indo-European roots of this shape would also constitute a light sequence from the point of view of Sievers' Law:

σάττω 'stuff' < **twnk-ye/o-*, cf. OHG ? -*dūhen* (*LIV*² 655 s.v. **twenk-*).

However, the use which can be made of this example is limited by the uncertainty as to the nature of the final velar. Reconstructing **twenk-* involves accepting that the root-final velar in all Germanic reflexes save -*dūhen* (e.g. OHG *dwingan* 'compress, coerce' and NHG *zwingen* 'compress, coerce') shows the generalization of a Verner's Law variant, and it also involves assuming that Cret. συνεσάδδῃ was analogically formed—an assumption which presents some problems of its own (see § 6.7.5).

We have a couple of examples of **-ye/o-* verbs from zero-grade roots of the shape **CHC-*. We noted in Part I that the predicted status of such a root for Sievers' Law (or Lindeman's Law) is not at all straightforward. Ringe (2006:121) argues that we should expect a root like **kH₂p-* to count as a heavy sequence, so that we should expect to reconstruct **kH₂p-īye-ti* and not **kH₂p-ye-ti*. This is certainly not what we find reflected in Greek:

βάπτω 'dip' (Hom.) < **g^wH₂b^h-ye/o-*, cf. ON *kefja* 'press down, immerse, choke' (*LIV*² 205–6 s.v. **g^weH₂b^h-*);⁶⁴

κάπτω 'gulp down' < **kH₂p-ye/o-*, cf. Lat. *capiō*, Goth. *haffan* (*LIV*² 344–5 s.v. **keH₂p-*, Beekes 2010:640).

Either Sievers' Law is false, or such sequences were not heavy for Sievers' Law in Indo-European, or there was already a prop-vowel of some kind breaking up the cluster with the laryngeal, or the forms were reanalysed somehow after laryngeals were replaced by full vowels in Greek. The possible explanations are rather numerous, and it is difficult to see how certainty could be achieved.

So we have seen that there are quite a few reconstructible **-ye/o-* presents built from zero-grade roots. In most instances this resulted in unambiguously light sequences preceding the suffix, both in Indo-European and in Greek. It is clear that **wrġ-ye/o-* could have resulted in a heavy sequence before the suffix at some stage. But the significance of this is intimately tied to the question of relative chronology, which is difficult to answer with certainty. The weight of **CHC-* clusters was the only real point of difficulty, and it is unclear how we should interpret this evidence.

⁶⁴ We should note that we would expect the ON form to have an initial *kv-*, if it was truly cognate. *LIV*² assumes that the anlaut is analogical on the preterite.

It is notable that we do not find any word equations involving *-ye/o- verbs built from roots with the shape *CRHC-. These would have contained a heavy sequence inherently even in the zero-grade root, unless, of course, we follow Schindler's views on the weight of clusters containing laryngeals.

7.2.1.2. Less Certain Evidence

We will consider here some examples of Greek *-ye/o- verbs which are built from roots which have some measure of comparative support in the verbal systems of other Indo-European languages, even if there are no precise word equations.

A root with a zero grade of the shape *(s)CR- is found in σχαίρω 'hop, dance' (Hom.) (only present and imperfect) < *skr-ye/o-, cf. Welsh *cerddaf* 'walk' < *ker-ye/o- (*LIV*² 556). The lack of agreement in root vocalism makes it difficult to reconstruct the present stem in *-ye/o- for Indo-European itself, but the Celtic evidence does offer some support for the antiquity of the root.

We also find examples built from zero-grade roots of the shape *CRR-. If we follow Schindler's (1977) general syllabification scheme, then we might expect the second of the two resonants to become syllabic when a *-ye/o- suffix follows, and this is what seems to happen in the case of χρίω 'spread, smear, graze' (Hom.), if it is really comparable with Lith. *grejù* (*griėti*) 'skim cream from milk' and goes back to *g^hri-ye/o-, as *LIV*² (203) supposes. The trouble is that the long vowel of Greek is somewhat unexpected. *LIV*²'s explanation that this is lengthening before a morpheme boundary seems a little ad hoc.

We do not have a secure etymology for ῥάνω 'spray, sprinkle', but the phonological relationship between the present and the aorist ῥρᾶνα/ῥρρηνα suggests that there was a *-ye/o- present *sran-ye/o- < *srn-ye/o-, or *wran-ye/o- < *wrn-ye/o-. Szemerényi (1956:74) connects Hitt. *ḫurnāi-* 'sprinkle', but it is difficult to see how the idea of a root-initial laryngeal can really be reconciled with the Greek evidence for a root-initial cluster *wr- or *sr-. It is conceivable that Slavonic forms such as Russ. *roniti* 'let fall' are cognate and go back to a root *wron- (see Solmsen 1904:590ff.). But this connection is not so self-evident as to be beyond doubt.

The best example of a zero grade of the shape *CRR- actually offers rather ambivalent evidence as to the proper syllabification of such a sequence. The common view⁶⁵ is that σαίρω 'sweep (out)' is connected with σῶρω 'drag, pull, draw, sweep' and that these forms represent the outcomes of alternative syllabifications of the zero grade of one and the same root, *twr-ye/o- and *tur-ye/o- respectively.

However, this view is rather difficult to accept in any straightforward fashion. Even if we take such twofold syllabification for granted (we might imagine one of these zero-grade roots being secondarily remade within Greek from the coincidentally unattested full-grade root, or perhaps prevocalic and pre-consonantal root variants splitting and going on to produce independent verbal systems), we still need to assume that the initial σ- of σῶρω was substituted for the expected *tūrō by analogy, and it is far from clear that the supposedly original identity of these roots would have remained sufficiently evident for such interference to take

⁶⁵ See e.g. Frisk (1991:671–2), Chantraine (1999:984), Beekes (2010:1301–2, 1424–5).

place after the distorting effects of the Greek change of **tw-* to *σ-* had taken effect; this change would have left two very different-looking roots **sr-* (or **sar-*) and **tur-*, and while we might try to argue that interference between them might be motivated on semantic grounds alone, very little in the way of formal similarity would have remained at the relevant stage to encourage such a process.

Vine (1999:570–1) takes a different approach and posits an *o*-grade formation **twor-ye/o-* which yielded **twur-ye/o-* by a rule of **o > *u* raising which included the sequence **-twor- > *-twur-*; cf. Lesb. πέσσυρες < **k^wetwores* (cf. Ved. *catvāras*). However, this solution requires the reconstruction of a vanishingly rare *o*-grade **-ye/o-* verbal formation, which is rather unlikely to be an inheritance (see §7.2.4), and our confidence in the reconstruction is rather limited in consequence.

Regardless of the cognate nature of σαίρω and σύρω, there is a certain amount of comparative evidence for a root **twer-* which could lie behind either or both of these Greek forms, if there is a connection with Ved. *tvārate* ‘hurry’, and OHG *dw-eran* ‘turn around quickly, stir’. Whether we reconstruct **twr-ye/o-* or **tur-ye/o-* for the earliest stage, a light sequence precedes **y* in either case.

We find plenty of examples of zero grades with the shape **(C)CRC-*:

θύσεται· τινάσεται ‘shake’ (Hsch.) < **d^hud^h-ye/o-*, cf. Ved. *dódhant-* (pple) ‘defiant, resistant, etc.’ (EWAia I 731, LIV² 148 s.v. *?*d^hewd^h-*);⁶⁶

δαδύσσομαι ‘to be distracted’ (only Sophr. 117 and Hsch.) < **duk-ye/o-*, possibly cf. Lat. *dūco*, Goth. *tiuhan* ‘drag’, and perhaps ἐνδυσκέως ‘greedily, ravenously’ (LIV² 124 s.v. **dewk-*);⁶⁷

λίσσομαι ‘beg, pray’ (Hom. etc.) < **lit-ye/o-*, cf. aor. λιτέσθαι, also present λίτομαι (probably secondary in *h.Hom.* etc.), cf. Lith. *liečiù* (*liēsti*) ‘touch’ from a full-grade formation (LIV² 410–11 s.v. 2. **leyt-*); the confidence we can have in this reconstruction is limited by the fact that the vocalism in Greek and Lithuanian does not match—a viable alternative would be to assume an original ablauting present formation in Indo-European and that **-ye/o-* presents were formed independently in Greek and Baltic;

λύζω ‘have hiccups, sob violently’ (Ar., Hp., Arist.) < **slug^h-ye/o-*, cf. OIr. *loingid*, *longait* ‘eat’, MLG *slūken* ‘swig’ (LIV² 567–8 s.v. **(s)lewg-*);⁶⁸

σκάζω ‘limp, halt’ (Hom.) < **skng-*, cf. OHG *hinkan*, ON *skakkr* ‘limping’, Pāli *khañjati* (LIV² 555 s.v. **(s)keng-*);⁶⁹

⁶⁶ Beekes (2010:566–7) is doubtful of the Vedic parallel and takes the view that this verb was invented by grammarians in order explain θύσανος ‘tassels, fringe’.

⁶⁷ It is unclear whether the prefix δα- should be interpreted as some kind of reduplication, or as the preverb δα- < δια- (cf. δάδουζ EM). Matters are complicated somewhat by the variant δαιδύσσεσθαι· ἔλκεσθαι ‘be drawn, pulled’ (Hsch.), which could be due to contamination with δαίζω ‘divide in two, cleave asunder’. Beekes (2010:295) thinks that the variation δα-/δα- may indicate a Pre-Greek origin. This is, of course, possible.

⁶⁸ The root is found both with and without a nasal infix in Greek, cf. λύγδην (S.) and λυγμός ‘swallowing’ (Hp. etc.) vs λυγγανόμενον· λύζοντα ἐν τῷ κλαίειν ‘sobbing while crying’ (Hsch.), aor. λύγξει (Gal.), and the noun λύγξ ‘swallowing’ (Hp., Pl., Th.). It is conceivable that λύζω could represent **lug-ye/o-* rather than **lug-ye/o-* (see Beekes 2010:876), but any level of certainty seems out of reach.

⁶⁹ Alternatively, we could assume a connection with Skt *skāndati* ‘jump’, Lat. *scandō* ‘ascend’, and suppose that σκάζω comes from **sknd-ye/o-* (see Beekes 2010:1338–9). The semantics of the Germanic forms seem closer.

δράσσομαι ‘grasp with the hand’ (with gen. *rei*) (Hom.) < **dr̥k^(h)-ye/o-*, cf. aor. ἐδραζάμην, perf. δέδραγμα (Hom.), and δραχμή; Pokorny (1959:212–13) reconstructs **derg^h*, cf. Arm. *trc^ε-ac* and Mlr. *dremm*, while LIV² (126) reconstructs **dreg^h* and compares in addition YAv. *dražaitē*, OIr. *dringid*, OCS *dr̥ža-*, etc.—the zero-grade form is the same in any case;⁷⁰

λίπτομαι ‘to be eager’ (later act. λίπτω) < **lip-ye/o-*, cf. perfect λελιμμένος (A.) etc., Lith. *liepiú* (*liēpti*), which is also a *-ye/o- verb but with a full-grade root (LIV² 409 s.v. 2.**leyp-*);⁷¹

ἐλελίζω ‘cause to shake’, med.-pass. ‘tremble’ (*h.Hom.*, Pi., E., etc.) < **H₁liḡ-ye/o-*, cf. Ved. *rējati* ‘make tremble’, Goth. *laikan* ‘jump’, etc. (see Beekes 2010:406), LIV² 246–7 s.v. **H₁leyḡ-*); the reduplication cannot be terribly old, since we would expect **H₁le-H₁liḡ-ye/o-* to yield **elēlizde/o-*.⁷²

We find one root with a zero grade of the shape **CuH-*, if we may detect a *-ye/o- verb in ὕω ‘cause to rain, it rains’ (Hom. etc.).⁷³ The zero grade of the root seems to be **suH₂-*; cf. Hitt. *šuhḫa-* ‘scatter, pour’, Toch.B *suwam* ‘it rains’, etc. To explain the Greek long vowel we may reconstruct **suH₂-ye/o-*.

On account of the semantic and formal similarity between Hitt. *šuhḫa-* and *išhuwa-* ‘pour’, Jasanoff (1978:89 n. 7 and esp. 90 n. 11c) argued that the root was **sH₂e-u-*. The zero grade of the root could undergo laryngeal metathesis, yielding **suH₂-*, the form found in Greek. This is the analysis followed by LIV² (545); for discussion, see Kloekhorst (2008:773). In any event, whether we should be reconstructing **suH₂-ye/o-* or **sH₂u-ye/o-* at the stage where any Sievers’ Law effects might be expected to be seen, there is no difference in the predictions which any theory of semivowel syllabicity would make: the predicted outcome is **y* and not **i*, and that is what we find.

There are a few examples with zero-grade roots of the shape **CRRC-*. It is always the second of the two resonants which is syllabic, and so such roots always constitute light sequences:

θρύπτω ‘break in pieces, enfeeble’ < **d^hrub^h-ye/o-*, cf. aor. δια-τρύφεν (Hom.), Old Saxon *drūvōn* ‘be sorrowful’, Latv. *drubazas* ‘a splinter’, etc. (LIV² 156 s.v. **d^hrewb^h-*);

⁷⁰ LIV²’s suggestion of a secondary present **dr-ṇ-ḡ^h-ye/o-* with nasal infixation and a *-ye/o- suffix would be possible (though it results in the unusual situation that the nasal infix is made syllabic). However, it is difficult to see how this could be verified.

⁷¹ If we think that λιπαρέω ‘persist, be obstinate’ (Hdt., A., Ar., etc.) could be cognate, then this might suggest a long root vowel, but the semantics are not that close, and the long vowel in λιπαρέω is also difficult to explain. It is difficult to see how λίπα ‘fat, gleaming’, λιπαρός ‘oily, rich, fruitful’ could be connected, *pace* Beekes (2010:865).

⁷² It is worth noting the secondary meaning for ἐλελίζω ‘turn around’. It is generally thought that this meaning arose at a stage when the aorists of ἐλελίζω and ἐλίσσω ‘turn, twist’ were phonologically very similar: ἐλέλιζα and **ewéliksa* respectively (see Frisk 1973:488–9). In support of this notion it can be noted when the *present* stem of ἐλελίζω is used, we do not find the meaning ‘turn’: it always means ‘make tremble, shake, etc.’ in the active or ‘tremble, quiver’ in the medio-passive (at least in the reliable contexts up to the fourth century).

⁷³ The earliest usage is unergative, and only later does the impersonal meaning develop.

ὀρύσσω ‘dig, dig up, gouge’ < *H₃ruk-ye/o-, cf. Lat. *runco*, -āre ‘weed out, root up’, Skt *luñcati* ‘to pluck’ (ep.), etc. (LIV² 307 s.v. *H₃rewk-);⁷⁴

κνίζω ‘scratch, etc.’ (Pi. etc.) < *knid-ye/o-, cf. aor. ἐκνίσα, cf. ON *hníta*, Latv. *knidēt*, both with root-final *-d- (LIV² 366 s.v. *kneyd-, Beekes 2010:724);

πλίσσομαι ‘cross legs (as in trotting)’ (Hom.) < *(s)plig^h-ye/o-, cf. aor. -ξάμην (Ar.Ach.217), ἀμφι-πλίζ ‘at full stride’ (adv. in S.Fr.), πλιχάς, πλιχάδος (f.) ‘inside of the thighs’ (Hp.Fract.20), etc., perhaps cf. OIr. *sliassait* ‘shank’ (< *spleygh^h-s-ont-iH₂).

We may have some additional evidence for the behaviour of zero-grade roots with the shape *CHC-, if there is a *-ye/o- verb lying behind ἐμπάζομαι ‘care about/for something’ (Hom.). The etymology is disputed (see Beekes 2010:417 for various suggestions). Frisk (1973:505) derived this verb from *em-pag-ye/o-; cf. παγῆναι the aorist of πῆγνυμι ‘fix, stick, join, etc.’ < *peH₂ǵ-; cf. Lat. *pangō* etc. In this case we could reconstruct *pH₂ǵ-ye/o-. However, Beekes (2010:417) prefers to connect this with the root peH₂- ‘protect’, in which case the *-ye/o- suffix need not be involved, and this may be a -ζε/o- verb instead.

It is unclear what we should reconstruct for the precursor of Greek ἄζομαι ‘stand in awe of’ and Ved. *yajati*. LIV² (224–5) reconstructs a root *(H)yaǵ- with an Indo-European *a.⁷⁵ But if we prefer not to reconstruct Indo-European *a, then there are other possibilities: we could follow LIV²’s (225 n. 1) alternative proposal of an anaptyctic vowel in a root *Hy_eǵ-; however, it remains unclear why there should be any need for anaptyxis in such a root structure. A third possibility is to suppose a root-internal laryngeal: *(H)yH₂ǵ- suffices for the Greek forms (adopted by Beekes 2010:11–12), and *(H)yeH₂ǵ- could give the Vedic form, providing we accept that there could be a loss of the laryngeal before a voiced stop plus another consonant (see Kloekhorst 2008:15 n. 11—*iH₂ǵ- and *ieH₂ǵ- in his orthography). Overall it is rather unclear what we should reconstruct for this root, and so the status of ἄζομαι as evidence in our investigation of Sievers’ Law is also unclear.

We could find no word equations exhibiting a *-ye/o- suffix following a zero-grade root with the shape *CRHC-, but there are some possible candidates in this set of ‘lower confidence’ forms.⁷⁶

There seems to be a long root vowel in ῥίπτω ‘throw, cast, hurl’; cf. aor. ῥῖψα and the cognate noun ῥῖπῆ ‘swing or force with which something is thrown’ (e.g. Il.16.589). If we suppose a Proto-Greek root *wrīp-, then we may compare OHG *riban* and MLG *wrīven* (see Pokorny 1959:1159). If this root is inherited and the *-ī- implies an Indo-European sequence *-iH-, then ῥίπτω seems to provide evidence for a *CRHC- root with a *-ye/o- suffix. If we think that laryngeals should

⁷⁴ On this account, the aspirated final velar of perf. ὀρώρῃχα, διώρῃξ, -υχος ‘trench, conduit, channel’ and the voiced velar in the late aor. pass. ὀρύγγην ought to be secondary.

⁷⁵ The reconstruction of an initial laryngeal (or otherwise) in this root is dependent on one’s preferred explanation for the apparent dual outcome in Greek of what would be reconstructed simply as word-initial *y- on the basis of all other Indo-European languages.

⁷⁶ It is unclear whether to categorize φρίσσω as a denominative from a root noun, or a primary formation based on a verbal root. The difference may be arbitrary. If sufficiently ancient, it could have come from *b^hriHk-ye/o- (but see §7.1.14.1).

have contributed to making a heavy sequence in such contexts, then the putative *wriHp-ye/o- constitutes a counterexample to Sievers' Law.

However, there are many problems. We should note that the semantics of the Greek and Germanic forms are not at all congruent. While the Greek forms mean 'throw, hurl', the Germanic forms mean 'rub' or 'polish'. Furthermore, the Germanic cognates are not really useable.⁷⁷ This verb is confined to West Germanic and the only forms attested before the late Middle Ages are the OHG ones; we cannot even reliably reconstruct this word for Proto-Germanic (see Seebold 1970:565).

The picture is further complicated by the observation that we find a short -i- in the aorist passive form ἐρρίφην (e.g. E.Hec.335, E.Fr.489). We also find ῥίφῃ 'throwing, hurling' (e.g. Lyc.235). Chantraine (1999:975), Frisk (1991:658–9), and Beekes (2010:1288) suppose that this short root vowel is secondary, but no analogical model is offered, and other than the supposed comparison with Germanic, there is no real basis for making this assessment.

Overall, the antiquity of this root stands in serious doubt, and if it was subject to length alternations then it is difficult to see how a *CRHC- structure would lie behind it.

It is difficult to understand the structure of the root in κνάπτω 'card wool, tear, rip, torture'; cf. γνάπτω in later Attic, γνάφαλλον 'cushion of wool', κνέφαλλον 'wool torn off in carding'. We might also compare the collateral formation κνάμπτω = κνάπτω. It is possible that this verb has come under the influence of γνάμπτω 'bend something' (see §6.5.5).

There are potential cognates for the forms with the voiceless initial velar; cf. Welsh *cnaif* 'fleece', OE *hnoppian*, and Latv. *knābt* 'pick' (see Chantraine 1999:546–7). But, if these are all ultimately based on the root *kneH₂- 'scratch' (see LIV² 365), it is still difficult to see how the root *knap- can be inherited; an extended root such as *kneH₂-p- or *knH₂-p- ought to have yielded *knāp- > *knēp-. For these reasons, it is difficult to know what use we can make of κνάπτω. Beekes (2010:721–2) supposes a Pre-Greek origin for κνάπτω in view of all the variation. This does not seem out of the question.

The only serious example of a verb with the configuration *CRHC-ye/o- is θρᾶσσω 'trouble, disturb'. The root shape can be deduced by comparing the collateral verb τρᾶσσω, the Homeric perfect τέτρηχα, and the related adjective τρᾶχύς 'rough, harsh' (epic τρηχύς); see Lamberterie (1990:416). On internal grounds there is a justification for supposing *d^h₁H₂g^h-ye/o- or *d^h₁reH₂g^h-ye/o-. There is Balto-Slavic evidence supporting the reconstruction of the zero-grade root *d^h₁rH₂g^h-. OCS *-dražiti* 'incite, provoke', Lith. *dirginti*.

It should be clear that θρᾶσσω would have violated Sievers' Law, if it was formed at a sufficiently early stage, and if we assume that a laryngeal plus a stop makes a heavy sequence for these purposes. This form constitutes the only convincing example of a *CHRC- root building a present stem with the *-ye/o- suffix. We have no other evidence that Greek inherited *-ye/o- verbs with such root shapes from Indo-European, and the other examples we have seen were either

⁷⁷ I am grateful to my external examiner for pointing this out to me.

phonologically or semantically anomalous. Nevertheless, this must be considered a counterexample to Sievers' Law in its most basic formulation.

7.2.1.3. Uncertain Evidence

We find a substantial number of Greek **-ye/o-* verbs where there are no cognates for the root in the verbal systems of other languages. Either the root only turns up in nominal formations, or the Greek evidence is simply isolated.

In these uncertain categories of evidence we find a couple of examples built from what look like zero-grade roots of the shape **(C)CR-*. LIV² (372) argues that ξύω 'shave, scratch' is to be traced back to **ksu-ye/o-*, but there are no verbal comparisons; instead we may compare Ved. *kṣurá-* 'razor'. The trouble is that in order to make the comparison, we have to assume that the vowel in the verb has been lengthened somehow. In addition, the supposition of a **-ye/o-* suffix is without any kind of basis, unless we think that this is a denominative formation.

Possibly we can also mention here αἶνω 'winnow', cf. aor. ἦναι and the collateral pres. ἀνέω, if it can be compared with Lat. *vannus* 'winnowing basket'. But this is all terribly uncertain (see Beekes 2010:40).

Matters become still worse when we look at examples that are essentially confined to Greek. It is possible that a **-ye/o-* present lies behind βδάλλω 'milk (cows)' (Pl.); cf. aor. βδάλας. There is also a Hesychian gloss βδαλοί· ῥαφίδες θαλάσσιαι. και φλέβες χρισσώδεις, denoting a kind of fish or varicose veins. We might imagine that all these go back to a form with a root-final syllabic **l*, but this is clearly not an Indo-European word and so certainty does not seem achievable (see Beekes 2010:208). This does not rule out the possibility that it could be a **-ye/o-* verb, but we cannot know whether it formed at a period in which Sievers' Law applied. In any event, it has a light sequence and **-ye/o-* rather than **-iye/o-*.

We find one example of what looks like a zero-grade root containing the sequence **-CRR-*. Beekes (2010:30) and Chantraine (1999) take ἀθῦρω 'play, sport' (Hom.) as a **-ye/o-* present, presumably on the basis that the long root vowel might be the result of a lengthening caused by the loss of a post-consonantal **y*. However, no other tense stems are attested against which a comparison could be made, and other nominal forms like ἄθυρμα 'toy' give no help with determining the original length of this vowel. Lengthening caused by the loss of **y* might be plausible, if we accept that Russ. *dur* 'foolishness' and Lith. *padūrmai* 'impetuous' (< **d^hur-*) are cognate. But this example is far from certain.

We find a few examples of what look like zero-grade roots of the shape **(C)CRC-*:

θάπτω 'honour with funeral rights, etc.' < **d^hmb^h-ye/o-*, cf. pass.fut. τάφῃσομαι, aor. ἐτάφην; Arm. *damb-an*, *damb-aran* 'tomb' and YAv. *daxma-* 'grave' < *d^hmb^hmo-*; ⁷⁸

⁷⁸ Clackson (1994:120–1) doubts the antiquity of these words. Certainly, we cannot place a great deal of confidence in the notion that the **-ye/o-* present is an inheritance, since Greek is the only language which shows this as a verbal root and is the only language with a **-ye/o-* present.

κύπτω ‘bend forward, stoop’ < **kub^h-ye/o-* ‘scratch, tear’ cf. aor. κύψαι with a short *υ*; Ved. *kubh-rá-* (EWAia I 368).⁷⁹

It is only possible to derive ἀμύσσω ‘scratch, tear’ from an inherited root if we can set aside the Greek variation between a root-final *-*k^h*- in forms such as the verbal noun ἀμυγή ‘rent, wound’ and *-*k-* in ἀμυκτικός ‘fit for lacerating’ (Plu., medic.) and ἀμυκάλαι· αἱ ἀκίδες τῶν βελῶν ‘barbs of arrows’ (Hsch., EM).⁸⁰ If we supposed that the unaspirated velar had historical priority, then we might be able to compare Lat. *mūcrō* ‘sharp point, sword’ (see de Vaan 2008:391–2), Lith. *mūšti* ‘beat’. But this example must be regarded as very uncertain.

Finding δρύπτω ‘scratch’ (Hom.) beside ἀμφί-δρυφος (Hom.) seems to suggest a present **drup^h-ye/o-* > δρύπτω, but the root is purely Greek, so it is difficult to know how old the formation might be. Indeed, if it is correct to link forms such as δρύψια ‘shavings’ and δρυμ-άσσω ‘tear up’, then there would appear to be a couple of root variants, which Beekes (2010:356) takes as an indication of Pre-Greek origin.

On the face of it δύπτω ‘dive in’ (Lyc., possibly Antim.) seems to have had the *-*ye/o-* suffix, cf. aor. ἔδυψα. However, there is no comparative evidence for such a root. Another possibility would be to follow Beekes (2010:359) in supposing that δύπτω was built analogically from the semantically very similar verb δύνω ‘enter, dive in’ after the model of other verbs in -πτω.

There are no external cognates for μάρπω ‘seize, overtake’ (Hom. etc.), cf. aor. ἔμαρψα, perf. μέμαρπεν. Various Hesychian glosses suggest a cognate verb within Greek with initial βρ-, e.g. βράβραι· συλλαβεῖν, ἀναλῶσαι, κρύβραι, θηρεῦσαι ‘gather; spend; hide; hunt’. In Greek terms we might reconstruct a root **mrp-* > **mrp-/marp-*.⁸¹

We have no reliable etymology for the root behind πλάσσω ‘mould, fashion’ (S. etc.), Att. -ττω (Ar.Nu.879 etc.). The aor. ἔπλαξ(σ)α (e.g. Hes.Op.70, Hdt.2.70) suggests a dental-final stem, and this is confirmed by nominal formations such as κοροπλάθιος ‘figure-maker’ (Pl.Tht.147b). Consequently, we reconstruct a present **plat^h-ye/o-*, but can go no further.

We have no certain etymology for ῥάπτω ‘sew together, stitch’ (Hom. etc.), cf. fut. ῥάψω and aor. ἔρραψα. The related noun ῥάφή ‘seam, suture of the skull’ suggests an original aspirate-final root. García Ramón (1985:218–19, 225) reconstructs **srp^h-ye/o-* from a root **sreb^h-/*srb^h-*; cf. Myc. <*e-ra-pe-me-na*> (KN L 647), which relates to textiles, and appears to represent ἔρραφμενᾶ, <*ra-pte-ri-ja*> ‘with saddler’s work’ (PY Sb 1315.2), and <*ra-pte*>, which could represent [rhap̥tēr] ‘saddler’. The Mycenaean data are incompatible with the traditional connection of ῥάπτω with Lith. *verpiù* (veĩpti) ‘spin’, *virpti* (virp̥ēti) ‘tremble’, in light of

⁷⁹ It is confusing that we also find κύφός ‘bent forwards, stooping’ (Hdn.). It is unclear how to explain the difference in root vocalism between this form and the verbal root.

⁸⁰ Beekes (2010:94) regards the root ἀμυκ-/ἀμυχ- as originating in Pre-Greek on the basis that it also undergoes an alternation with a root shape ἀμυσχ- in ἀμύσχεσθαι· τὸ ξέειν τὰς σάρκας τοῖς ὀνύχιν ‘laceration of flesh with claws’ (Hsch.).

⁸¹ It does not seem possible to reconcile the gloss βράξαι· συλλαβεῖν, δακτεῖν, καταπιεῖν ‘gather; bite; drink’ with a root-final velar. Beekes (2010:908) makes an attempt by reconstructing a Pre-Greek root **mr(a)k^w-*, but we would have to suppose different phonological outcomes to an Indo-European labiovelar. It seems safer to leave this gloss aside for our purposes.

the lack of an initial **w-* in Mycenaean. For the same reasons we cannot consider it to be connected with the Mycenaean personal name <*wa-ra-pi-si-ro*> (MY Au 102.1, apparently [*wrapsilos*] a hypocoristic of **wrapsi-lāwos*; see Heubeck 1959:119–26). In any event, whatever the true etymology may be, the weight of the sequence preceding **y* is not in doubt.

It is possible that σφύζω ‘beat violently’ (Hp., Pl., Arist., Thphr.) is from **sp^hug-ye/o-*; cf. σφυγμός ‘pulse’, σφύξις ‘pulse’ (Arist., Gal.), etc. But we have no etymology for the root.

We do not have external cognates for φράζω ‘show, inform, suggest’, med.-pass. ‘consider, perceive, beware of’ (Hom. etc.). But we can tell on internal grounds that it is built from a root **p^hrad-*; cf. the epic reduplicated aor. ἐπέφραδον (Hom.) and the sigmatic aorist ἔφρασσα (Hom.), φράσσατε (Pi.), and cf. φραδῆ ‘understanding, knowledge’ (Pi.). There is no evidence outside Greek for an Indo-European root which could yield **p^hrad-*. Beekes (2010:1590–1) supposes this is an extended form of the root found in φρήν ‘mind, spirit, etc.’, in which case we would reconstruct **p^hrn-d-ye/o-* or even **b^hrn-d-ye/o-*. But the antiquity of this extended root, and indeed the simpler root on which it could be based, is unclear.

We find a few instances of **CHC* roots:

δάπτω ‘devour’ < **dH₂p-ye/o-*; cf. δᾶπνῃ ‘expense, money spent’, Lat. *daps* ‘(sacrificial) meal’, *damnum* ‘expenditure’, Hitt. *tappala* ‘person responsible for court cooking’, Arm. *tawn* ‘feast’, ON. *tafn* ‘sacrificial animal/meal’ (LIV² 104);

στάζω ‘let drop, shed’ < *stH₂g-ye/o-*, cf. σταγών ‘drop’, Lat. *stāgnum* ‘standing water’, OBret. *staer*, Bret. *ster* ‘river, stream’ < **stagrā* (however, there are semantic factors which may suggest that this **-ye/o-* verb might not be terribly old: see §7.2.2.6).

We might also find some examples among purely Greek roots. It may be that δάσσω ‘divide’ (Call.) is based on the same root as δατέομαι ‘share’, in which case we seem to have a uniquely Greek root **dat-*, which could be an extended form of the inherited **deH₂-/*dH₂-*; cf. δαίομαι ‘divide etc.’, Skt *dāyate* < **dH₂-eye-*. Beekes (2010:305) regards δάσσω as an analogical innovation based on the aor. δάσ(σ)ασθαι (δατέομαι). This seems quite likely, and such an origin would rule out using the evidence of this example.

The geminated *-λλ-* of Hsch. δάλλει· κακουργεῖ ‘do evil’ may be indicative of an original **-ye/o-* verb; cf. φρενο-δᾶλής ‘destroying the mind’ (A.Eu.330) with single *-λ-*. If this root is connected with Hom. δηλέομαι ‘hurt, damage’, Theoc. δᾶλ-, then we seem to have evidence for an **a/*ā* alternation in root vocalism. Beekes (2010:323–4) attributes this alternation to a Pre-Greek origin for the verb, but a zero-grade/full-grade relationship **dH₂l-/*deH₂l-* would also be possible. There is no intrinsic reason why a formation **dH₂l-ye/o-* (or even **deH₂l-ye/o-* > **dālye/o-* > δάλλω) could not be entertained as a possibility, but there is no comparative evidence for such a reconstruction.

7.2.1.4. Conclusions

It should be obvious that the majority of Indo-European root shapes constitute light sequences in the zero grade. The only configuration which could form a

heavy sequence (on some analyses) is a root of the shape *CRHC-. The evidence for *-ye/o- verbs built from such roots is minimal. There are certainly no word equations of the type *CRHC-ye/o-. Indeed, there is only one example of a Greek *-ye/o- verb formed from such a root where it looks as if the root could have been inherited: $\theta\rho\tilde{\alpha}\sigma\sigma\omega < *d^h\eta H_2 g^h\text{-ye/o-}$. Naturally, there is no guarantee that the *-ye/o- verb itself was inherited; indeed, given the dearth of parallels, the chances are slim.

The other major point that I would like to draw out of this discussion of the zero-grade forms relates to the overall distribution of root-final consonants. In these zero-grade formations we consistently find a slight excess in the number of roots ending in an obstruent over and above the number of roots ending in a resonant. Among the word equations, the most certain category of evidence, we find 4 examples ending in a resonant (μαίνομαι, βαίνω, ἄλλομαι, possibly αἰρέω), but 11 examples ending in an obstruent (φράσσω, ἀτυζόμενος, μύσσω, νίζω, σχίζω, στίζω, τύπτω, Myc. *wo-ze*, possibly σάπτω, βάπτω, κάπτω). Within the less certain category of evidence, where a solely Greek *-ye/o- suffix attached to an inherited root, we find a similar result. Of these less certain examples, 5 end in a resonant (σχαίρω, perhaps χρίω, perhaps ραίνω, σαίρω, σῦρω) but 18 end in an obstruent (θύσσεται, δαδύσσομαι, λίττομαι, λύζω, σκάζω, δράσσομαι, λίπτομαι, ἐλελίζω, θρύπτω, ὀρύσσω, κνίζω, πλίσσομαι, perhaps ἐμπάζομαι, perhaps ἄζομαι, probably not ῥίπτω, κνάπτω, θράσσω, possibly ὕω). The same pattern is repeated in the least certain categories of evidence: 5 examples end in a resonant (ξῖω, maybe αῖνω, βδάλλω, ἀθύρω, δάλλει) and 13 examples end in an obstruent (θάπτω, κύπτω, ἄμύσσω, δρύπτω, δύπτω, μάρπτω, πλάσσω, ῥάπτω, σφύζω, φράζω, δάπτω, στάζω, δάσσω).

This distribution within the category of zero-grade forms has no particular significance in itself.⁸² But we should bear this pattern in mind when we come to look at full-grade forms, because there is a dramatic difference in distribution, which may have significance.

7.2.2. Applying Semantic Criteria

We have already seen that the denominative *-ye/o- verbs exhibit some distinctive semantic properties. Denominatives based on adjectives with *theme* semantics (such as ποικίλος ‘multicoloured, manifold’) have factitive/causative semantics (i.e. ποικίλλω ‘make something elaborate’); the *theme* semantic role is spelled out as the verbal object, and an *agent* argument is added, being realized as the verbal subject.

On the other hand, in *-ye/o- verbs which are based on adjectives with *agent* or *experiencer* semantics (such as στωμύλος ‘talkative’), the verbal subject simply spells out the argument structure of the base (i.e. στωμύλλω ‘be talkative’).

⁸² Note that the lack of laryngeal-final stems is neither an accident nor a pattern. We removed these from consideration when their contribution was discussed in detail (§6.8.1).

We interpreted this behaviour as a consequence of a constraint on the semantic role of the subject of **-ye/o-* denominatives: the active subject of a Greek **-ye/o-* denominative must be an *agent* or *experiencer*. This constraint was borne out, in that wherever we found a *theme* verbal subject, either the usage turned out to be a demonstrably secondary development, or there turned out to be other morphological peculiarities, suggesting that the formation in question was in unusual in some other respect as well. In the case of *φρίσσω*, *πτώσσω*, and *σκήπτομαι*, we felt sufficiently confident in our understanding of how denominative formation should work that these were identified as secondary developments on semantic grounds alone.

Ultimately, we want to know whether any of these properties also apply to the primary formations which we have been able to reconstruct for Indo-European. Unfortunately, it is much harder to assess the semantic properties of primary formations, since the properties of the base form, i.e. the root, cannot be brought under independent scrutiny. However, we can, at least, give consideration to the semantic role of the subject in the Indo-European examples, and this should still give us a certain amount of information.

7.2.2.1. The Semantic Role of the Subject in Indo-European

We find two examples whose subjects have what we would tend to characterize as an *experiencer* semantic role; both are middle forms:

ἀταζόμενος ‘be bewildered’ < **H₂tuǵ-ye/o-* (see LIV² 286);

μαίνομαι ‘rage’ < **mǵ-ye/o-* (see LIV² 435–6).

The remaining examples exhibit an *agent* semantic role regardless of diathesis:

possibly *αἰρέω* ‘take’ ← **sr-ye/o-* (see LIV² 535 esp. n. 2);

βάπτω ‘dip’ < **g^wH₂b^h-ye/o-* (see LIV² 205);

βαίνω ‘step’ < **g^wm-ye/o-* (see LIV² 209–10);

κάπτω ‘gulp down’ < **kH₂p-ye/o-* (see LIV² 344–5);

-μύσσω ‘sneeze’ < **muk-ye/o-* (see LIV² 443–4);

νίζω ‘wash hands’ < **nig^w-ye/o-* (see LIV² 450);

ἄλλομαι ‘leap’ < **sl-ye/o-* (see LIV² 527);

σχίζω ‘cleave’ < **sk^hid-ye/o-* (see LIV² 547–8);

στιίζω ‘tattoo’ < **(s)tig-ye/o-* (see LIV² 592–3);

τύπτω ‘beat’ < **(s)tup-ye/o-* (see LIV² 602–3);

σάττω ‘stuff’ < **twnǵ-ye/o-* (see LIV² 655);

φράσσω ‘fortify, block up, etc.’ < **b^hrk^w-ye/o-* (see LIV² 93–4);

Myc. *wo-ze* ‘do’ < **wrǵ-ye/o-* (see LIV² 686–7).

If we survey briefly the active **-ye/o-* verbs that lack word equations but have some measure of support for the antiquity of the root, we find the same pattern: *σχαίρω* ‘hop, dance’ < **skr-ye/o-*; perhaps *χρίω* ‘spread, smear, graze’

< *g^hri-ye/o-; perhaps ῥάνω ‘spray, sprinkle’ < *wran-ye/o-; perhaps σάρω ‘sweep (out)’ or σῶρω ‘drag, pull, draw, sweep’ if from *twr_o-ye/o- and *tur-ye/o- respectively; σκάζω ‘limp, halt’ < *skng-; ἐλελίζω ‘cause to shake, med.-pass. ‘tremble’ < *H₁liġ-ye/o-; θρύπτω ‘break in pieces, enfeeble’ < *d^hrub^h-ye/o-; ὀρύσσω ‘dig, dig up, gouge’ < *H₃ruk-ye/o-; κνίζω ‘scratch’ < *knid-ye/o-; θρᾶσσω ‘trouble, disturb’ < *d^hrH₂g^h-ye/o-.

It is not clear to me whether λύζω ‘have hiccups, sob violently’ (< *slug^h-ye/o-) should be counted as a verb with a *theme* subject or an *experiencer*. The question may not be terribly relevant, if OIr. *loingid*, *longait* ‘eat’ and MLG *slūken* ‘swig’ indicate that there has been a semantic development.

At an early stage ῥω has an unergative sense ‘cause to rain’ (probably originally from ‘scatter, pour on’); only later within Greek does the impersonal meaning ‘it rains’ develop.

In general, this approach is very limited, and flawed in various ways, since we should really provide detailed comparative evidence for the semantics of each item before drawing any substantive conclusions. However, at a minimum, we can say, on the basis of this limited survey, that there are no obvious examples of inherited *theme* subjects or impersonal subjects among these formations. Of course, even with the most careful of studies, we could never *prove* that such examples did not exist. Nevertheless, the evidence of the inherited verbs and the more plentifully attested and better understood denominative verbs points in the same direction. It seems reasonable to hypothesize that the active *-ye/o- verbs inherited by Greek did not allow *theme* subjects or impersonal subjects, but required an *agent* or *experiencer*. This may seem a modest conclusion, but it is certainly non-trivial, since we can see the development of different semantic patterns among the later evidence, and we can use these facts as a criterion for a limited amount of chronological stratification in some of the data.

7.2.2.2. Alternative Semantic Patterns

We have already seen that some verbal formations work very differently from the inherited *-ye/o- verbs. For example, the -αζε/o- verbal suffix can show a distinctive pattern of *causative/inchoative* semantics, whereby the semantic role of the subject is determined by the transitivity of the verb, e.g. ἰσάζω ‘make equal’ (tr.)/‘be equal’ (intr.) built from ἴσος, -η, -ον ‘equal’; ἀνιάζω ‘distress, grieve someone’ (tr.)/‘be grieved’ (intr.) built from ἀνίη ‘grief, distress’. We have seen examples with *theme* subjects and inchoative semantics, e.g. ὑποπερχάζω ‘become dark’ beside περχνός ‘dusty, dark’; cf. ἀκμαάζω ‘flourish’ (Hdt. etc.) built from ἀκμή ‘edge’.

We find similar causative/inchoative alternations in other late formations, e.g. μορμολ-ύσσομαι has a transitive meaning ‘scare, frighten’ (e.g. Ar.Av.1245) and an intransitive meaning ‘fear, be afraid’ (Pl.Ax.364b.). Similarly, δειδ-ίσσομαι means ‘frighten’ (tr., e.g. Il.4.184) or ‘fear’ (intr., e.g. Hp.Mul.125).

Several verbs that we can identify, on independent grounds, as being comparatively late analogical creations show similar patterns: e.g., when used transitively, πρήσσω (with its analogical root-final consonant voicing) may mean ‘do something to someone; finish someone off; accomplish something’. But when used

intransitively, it usually means ‘experience a certain fortune’, i.e. ‘fare (well or ill)’, probably with a *theme* subject (e.g. in Hdt.4.78).

We know that ἄρμóσσω and ἄρμóζω are not archaic **-ye/o-* verbs, because otherwise we should expect to see **harmainō* ← ἄρμα ‘wagon, chariot’. (Myc. *a-mo*). They exhibit a transitive usage with an *agent* subject ‘make something fit’ (e.g. E.Cyc.460, Pi.I.7.39) and an equally well-attested intransitive unaccusative meaning with a *theme* subject ‘to fit in well, be suitable’ (e.g. of clothes or armour Pi.P.4.80, X.Cyr.2.1.16); we even find an (intransitive) impersonal sense ‘it is fitting’ (e.g. S.Tr.731).

This correlation between distinctive semantic patterns and late modes of morphological derivation serves to reinforce the view that *causative/inchoative* semantics were on the rise among a range of secondary suffixes and comparatively late formations.

7.2.2.3. The Origins of ἄϊσσω

It appears that ἄϊσσω ‘dart, glance; set in motion’ (intr./tr.) (Hom.) is formed from the same stem/root as a number of nominal formations, cf. αἶκλή ‘rapid motion’ (Hom.), πολυαἶξ ‘much rushing, impetuous, furious’, κορυθαἶξ ‘helmet shaking’ (hapax at Il.22.132, apparently a substitute for κορυθαἰόλος ‘moving the helmet quickly’). It seems likely that we should suppose the existence of a root noun, for which there may be direct evidence in ἀνέμων αἶκας ‘rush of the winds’ (A.R.4.820). Such a root noun could have been the base for ἄϊσσω, or they could be parallel formations from a common root.

The Indo-European etymology of these forms is terribly uncertain (see Beekes 2010:44), but it is at least clear that if ἄϊσσω is a **-ye/o-* verb, then it is built from a stem that in all other clear contexts can be shown to have a long vowel in the syllable preceding the **-ye/o-* suffix. This seems to constitute a violation of Sievers’ Law under any sets of assumptions we might choose to make. However, there are semantic problems associated with the reconstruction of a **-ye/o-* suffix in this form, which may throw its origins into doubt.

When used intransitively, this verb generally denotes spontaneous movements or trajectories and tends to be used of inanimate subjects: e.g. it describes the motion of a ‘ray of light’ (αὐγή) in Il.18.212. In Pi.N.8.40 this verb denotes the growth of a tree, with δένδρεον as the verbal subject. Hippocrates uses it to describe how veins ‘dart’ through the body (Hp.Epid.2.4.1). In E.Hipp.1351 ‘pains’ (ὀδύναι) ‘dart’ in the head. The verb can be used of people, but less commonly (e.g. in Il.11.484 a ῥῥως ‘darts’ on his enemy). The verb’s selection properties may suggest that the subject of these intransitive uses is not an *agent* but a *theme*.

This notion gains credence when we notice the verb also has a transitive usage. When transitive, the verb means ‘set something in motion’ both in the present (E.Or.1430, putting the air in motion with a fan) and in the aorist (S.Aj.40, putting hands in motion). This meaning can be understood as the causative of the intransitive meaning. This transitive/intransitive pair stands in a causative/inchoative relationship.

I suggest that such semantic and syntactic behaviour would not have been possible for an ancient **-ye/o-* verb. We would expect an obligatory *agent* subject and we would not expect the argument structure alternation displayed here. Therefore, I propose that this example does not constitute an early **-ye/o-* verb. It is likely to

be formed analogically, but it is difficult to know any details about its history. The active sigmatic aorist might have been a possible starting point. We cannot know what kind of present stem formation (if any) might have existed before this analogical present stem was built.

7.2.2.4. *The Origins of κάμπτω*

Clearly, κάμπτω ‘bend, curve, turn’ (A.) has a heavy sequence before the apparent reflex of a *-ye/o- suffix. If ancient, this would be a counterexample to Sievers’ Law. Indo-European comparisons have been drawn, cf. Lith. *kāmp-as* ‘corner, curved’, Latv. *kampis* ‘curved wood’; possibly also cf. Lat. *campus* ‘field’, if the semantics can be reconciled. We also find forms with *u*-vocalism: Lith. *kuñpas* ‘curve’, Latv. *kūnpt* ‘bend, shrink’, and these are more difficult to understand. Beekes (2010:633–2) cautions against reconstructing an Indo-European antecedent for this root, but instead supposes a Pre-Greek or European substrate word reflected in different ways in different languages. Whatever its origin may be, it seems probable that κάμπτω is responsible for exercising a significant influence on the collateral form γνάμπτω (see §6.5.5).

Even if we could reconstruct a root such as **kamp-* or **kH₂emp-* lying behind κάμπτω, I think it improbable that it represents an ancient *-ye/o- verb on semantic grounds. This verb exhibits a causative/inchoative alternation. It is often used transitively with the meaning ‘bend something, turn something’, often of knees with the meaning ‘sit down, rest’, e.g. κάμπτων γόγυ in A.Pr.32, Il.7.118.⁸³ Often it is used to denote the action of turning a horse or chariot around a course, e.g. in A.Ag.344, S.El.744. These uses clearly involve an *agent* subject.

But when used intransitively, this verb has the meaning ‘turn (oneself)’ instead of ‘turn (something else)’, e.g. ἐγγὺς τῶν ἐμῶν κάμπτεῖς φρενῶν ‘you come near my meaning’ in E.IT815 (cf. E.Ba.1225 and S.OC85). This apparent alternation in argument structure is not characteristic of the semantic behaviour of *-ye/o- verbs, insofar as we can ascertain it.

It seems likely that this present stem is an innovation. It is worth noting that we have far greater quantities of evidence for the aorist stem in this verb than for the -πτω present. It could be that originally there was a different present formation which has been replaced. This later origin would explain the failure of this verb to conform to the expected semantic patterns.

7.2.2.5. *The Origins of γρούπτειν*

It seems likely that there is a long root vowel in γρούπτειν: γρουποῦσθαι. συγκάμπτεσθαι ‘become hooked/bent’ (Hsch.), and the phonological configuration is such that a *-ye/o- verb seems a possibility; cf. γρούπος ‘hook-nosed, curved’, γρούψ, -ρός ‘griffin’ (see Beekes 2010:289). This verb could constitute an exception to Sievers’ Law. However, the word has no clear Indo-European etymology; the potential connection with OE *crumb*, OHG *krumb* ‘crooked’ is made difficult by the nasal. Furthermore, there are semantic problems, in that an inchoative meaning with a *theme* subject has been shown to be an unavailable configuration for a

⁸³ It seems that this phrase was sufficiently common that κάμπτω alone could be used in the sense ‘sit down, rest’, e.g. S.OC85, E.Hec.1080.

genuine *-ye/o- verb. This together with the late and shaky attestation means that we do not need to take this example too seriously.

7.2.2.6. The Origins of στᾶζω

Post-Homeric στᾶζω < *stH₂ǵ-ye/o-* can mean 'let drop, shed' or 'drip' in an absolute sense (e.g. with water or blood as the subject). As we have been arguing, this seems out of place for a *-ye/o- verb.

We should note that this verb belongs to the category of 'low confidence' forms; outside Greek **stH₂ǵ-* is not found as a verbal root; cf. σταγών 'drop', Lat. *stāgnūm* 'standing water', OBret. *staer*, Bret. *ster* 'river, stream' < **stagrā*. It seems likely that the verb is of Greek origin rather than Indo-European. However, its exact basis of formation is not clear.

7.2.3. Full-grade *-ye/o- Verbs

In addition to the zero-grade *-ye/o- verbs considered above, some full-grade *-ye/o- formations must also be attributed to Indo-European. Indeed, LIV² reconstructs 50 forms of this type: e.g. **ǵ^her-ye/o-* (> Ved. *háryati*), **spék-ye/o-* (> Ved. *pásyati*). Furthermore, we find plenty of instances of full-grade *-ye/o- verbs in Greek, such as θείνω 'strike', κλέπτω 'steal', πέσσω 'soften, ripen'. The important question from our perspective is how extensive this formation may have been, and what phonotactic consequences might have ensued if some version of Sievers' Law was ever in operation.

We have seen that there was very little scope for heavy sequences to precede the *-ye/o- suffix in the zero-grade formation. However, if it were possible to attach the *-ye/o- suffix to any full-grade root, then very common root shapes would have produced heavy sequences before the suffix, e.g. **CeRC* + **-ye/o-*. If Sievers' Law operated in Indo-European and early Greek, then we would expect to find full-grade verbal roots with heavy sequences preceding a suffix **-iye/o-*. However, as we have established, **-iye/o-* is not found in Greek and there does not seem to be a plausible mechanism whereby **-ye/o-* could have displaced it. So it is clear that the following facts are incompatible:

- (i) Greek inherited a productive means of forming full-grade **-ye/o-* presents from any verbal root.
- (ii) Greek inherited a Sievers' Law distribution of **i* and **y*.
- (iii) Greek shows no evidence for an **-iye/o-* variant of the **-ye/o-* suffix.

Which of these statements are we to accept? The last is simply a fact about Greek, and we are currently investigating the viability of (ii). Let us examine (i); for if Greek did inherit such a capacity, then this would throw doubt on the truth of (ii).

7.2.3.1. **TeT-* Roots

We shall begin with a type of formation that can certainly be attributed to Indo-European and was certainly inherited by Greek. Roots of the shape

*TeT- (where T = any stop) never built zero-grade *-ye/o- present stems of the shape *TT-ye/o-. If such forms ever existed, the word-initial stop clusters were eliminated. Instead we consistently find a full-grade formation with [e] vocalism for such root shapes:

χέζω ‘defecate’ < *ġ^hed-ye/o-, cf. Alb. *dhjes*; for the root cf. the thematic present in Skt *hadati* (LIV² 172 s.v. *ġ^hed-);

πέσσω ‘ripen, cook’ < *pek^w-ye/o-, cf. Ved. *pácýate* (LIV² 468 s.v. *pek^w-);

σκέπτομαι ‘look around’ < *spek^h-ye/o-, cf. Skt *pásyati*, OAv. *spasiiā*, Lat. *speciō* (LIV² 575–6 s.v. *spek^h-);

θέσσεσθαι αἰτεῖν, ἱκετεύειν ‘pray, ask for’ (Hsch.) < *g^{wh}ed^h-ye/o-, cf. aor. θέσσάμενος, θέσαντο (Hes., Archil., etc.), Goth. *bidjip*,⁸⁴ Av. *jaiðiieiti*, OIr. *guidid*,⁸⁵ cf. intensive ποθεῖ ‘(s)he longs for’ (LIV² 217 s.v. *g^{wh}ed^h-).

Naturally, such roots are light from the point of view of Sievers’ Law. It is interesting to note that this class essentially died out as a productive category in Greek. We find no more examples, the formation is not extended, and every example found in Greek (all four of them) was formed in Indo-European.

Whatever the inherited basis for the Greek full-grade formation may be, it is more or less out of the question that this class provided a model.

7.2.3.2. Ambiguities in the Evidence

Many potentially inherited forms simply present too many ambiguities of interpretation to be usable in trying to establish the original scope of this formation. This is largely due to the ways in which laryngeals developed in Greek. We will not recapitulate the findings of the last chapter in detail, but we find many forms from inherited roots that are ambiguous between full- and zero-grade formations, and sometimes need not have contained the *-ye/o- suffix at all, e.g.:

ᾀσσομαι < *H₃k^w-ye/o- or *H₃ek^w-ye/o- (see §6.8.1.1);

ᾀζομαι < *H₂d-ye/o- or *H₂ed-ye/o- (see §6.8.1.1);

ᾀζω < *H₃d-ye/o- or *H₃ed-ye/o- (see §6.8.1.1);

ᾀπτω conceivably < *H₂p-ye/o- or *H₂ep-ye/o- (see §6.8.1.1);

σφάλλω < *(s)g^{wh}H₂l-ye/o- or *(s)g^{wh}H₂el-ye/o- (see §6.8.1.2);

δρᾶω < *dr^hH₂-ye/o- or *dreH₂-ye/o- (see §6.8.1.3);

πλώω < *pl^hH₃-ye/o- or *pleH₃-ye/o- (see §6.8.1.3);

Att. κνῶ < *kn^hH₂-ye/o- or *kneH₂-ye/o- (see §6.8.1.3);

σμῶ, σμῆ < *sm^hH₁-ye/o- or *smeH₁-ye/o- (see §6.8.1.3);

ᾀεται < *sH₂-ye/o- or *seH₂-ye/o- (see §6.8.1.4);

διαττάω < *-kyeH₂-ye/o- or *-kyeH₂-e/o- (see §6.8.1.4);

θῆσθαι < *d^heH₁-ye/o- or *t^he-st^hai (see §6.8.1.4).

⁸⁴ See Seebold (1967:104–33, 1970:91–3).

⁸⁵ See Cowgill (1980:49–60).

For the ambiguities involved in roots of the shape **HeRH-* and **HReH-*, such as ἀρώω, ἀλάομαι, ἀάω, ἀλέω, ἐρέω, Myc. *e-re-e*, ἐάω, and ἀμάω, see §6.8.1.5.

We have already seen that in the case of verbal stems that end in geminate -λλ-, which go back to roots ending in an **-lH-* sequence, it is difficult to be sure whether we should reconstruct a **-ye/o-* present with deletion of the root-final laryngeal by Peters' putative rule **CRHy > *CəRy* (for discussion see §6.8.1.3), or whether we should posit a nasal infix present of the sort posited for βάλλω < **g^wal-nō* ← **g^walnēmi* < **g^wl-ne-H₁-* (see Sihler 1995:519 and *LIV*² 208 and n. 4).

An example like τέλλω presents us with a very similar dilemma. This verb exhibits a wide range of meanings in combination with a wide range of prepositions, in the active 'make rise, produce (tr.)' or 'rise, originate (intr.)' (usually with various prepositions) and in the medio-passive 'grow up, rise'; in the medio-passive it can also mean 'change, come into being, become' and with the preposition περι- 'go around in circles'; furthermore, in the active, it can mean 'accomplish, perform duties'.

It seems likely that we are dealing with more than one root. Beekes (2010: 1461–2) supposes that the senses 'turn in circles', 'change, originate, become', and 'rise up' (and secondarily 'achieve, perform') have their origin in the root **k^wel-* 'turn'; cf. the Aeolic thematic present πέλομαι (this root is reconstructed as **k^welH₁-* by *LIV*² 386–8). On the other hand, 'make rise, produce' and 'rise up, originate' might be from **telH₂-ye/o-* 'lift up, bear' (cf. Lat. *tollō* etc.); see *LIV*² (622–3). There is considerable overlap between these senses.

Beekes (2010) reconstructs full-grade **-ye/o-* presents to account for all of these forms, invoking Pinault's rule to explain the lack of any laryngeal reflex where it might have been expected. However, a thematized nasal present such as **tel-n-H₂-e/o-* or **k^wel-ne/o-* (or **k^wel-n-H₁-e/o-*) would account for the facts equally well (though the position of the full-grade vowel would be slightly odd). Indeed, *LIV*² (662–3, 386–8) reconstructs nasal presents to account for these verbs. Unfortunately, the ambiguity of the example robs it of the ability to play a role in establishing what the original scope of the full-grade **-ye/o-* formation might have been.

7.2.3.3. Roots Containing Diphthongs

We find seven Greek **-ye/o-* formations built from roots containing -au- and -ai- diphthongs, which can be argued, with varying degrees of conviction, to go back to roots containing a sequence **-H₂w-* or **-H₂u-*. If they are very old, then it is likely that they represent the outcome of full-grade **-ye/o-* formations. But their antiquity is far from being assured.

In purely Greek terms, the **-ye/o-* verb δαίω 'kindle' is clearly based on the root **daw-*; cf. δεδαυμένος 'lit up' (Semon.). If the *a*-vocalism is to be attributed to a root-internal laryngeal, then we might reconstruct **deH₂w-*; cf. MW *kynneu-* < **kom-dāwī* (see *LIV*² 104–5). From a slightly different configuration of the same root, we find Ved. *dunōti* 'burn', if it represents a reshaping of **dunāti* < **du-n-H₂-*, based on a metathesized zero-grade root **duH₂-C-* < **dH₂w-C-*.

It seems very difficult to reconstruct a zero-grade formation **dH₂u-ye/o-* lying behind δαίω. We would generally expect it to be the semivowel which vocalizes in inter-consonantal laryngeal plus semivowel or semivowel plus laryngeal sequences

(the Greek change of word-final $*(C)-iH_2\# > *(C)-ya\#$ notwithstanding)—see §3.5.2—and so we would expect either $*dH_2u-ye/o- > *du\bar{o}$ (perhaps cf. the root in $\delta\acute{o}\eta$ ‘misery, anguish’ $\leftarrow$ ‘burning pain’), or a laryngeal metathesis giving $*duH_2-ye/o- > *d\bar{u}\bar{o}$. It would not be out of the question to suppose that in a prevocalic position a root $*dH_2w-$ would have yielded $*daw-$, since it might be reasonably supposed that the semivowel could have been forced to appear in the syllable margin, regardless of the intrinsic relative sonority of laryngeals and semivowels. From this root $*daw-$, a $*-ye/o-$ verb could have been derived secondarily within the history of Greek.

A different approach is taken by Peters (1980:37, 118), who argues that $\delta\alpha\acute{\iota}\omega$ goes back to a full-grade formation $*deH_2u-ye/o-$, which we would reasonably expect to have yielded $*da\ddot{u}-ye/o- > *daw-ye/o- > \delta\alpha\acute{\iota}\omega$, assuming that Schindler’s basic syllabification rule was respected at the earliest stage (see Chapter 3, n. 39).⁸⁶ We may compare the different treatment of this root in a prevocalic environment: $*deH_2w-i(H)o-s > *d\bar{a}wios > \delta\acute{\eta}\iota\omicron\varsigma$ ‘destructive’.

A similar analysis seems to be required by $\chi\lambda\acute{\alpha}\iota\omega$ ‘lament, bewail’. The root in Greek clearly has the shape $*klaw-$ (as shown for example by the aor. $\acute{\epsilon}\chi\lambda\alpha\upsilon\sigma\alpha$), and there may be comparative evidence from Albanian (Tosk.) $kl\bar{a}n\bar{e}$ ‘weep’. If we are not inclined to reconstruct Indo-European $*a$, then a laryngeal might be indicated, i.e. a root $*\hat{k}leH_2w-$ (see Peters 1980:35). A formation with a pre-consonantal zero-grade root, i.e. $*klH_2u-ye/o-$, would be expected to have given an outcome $*kalu\bar{y}e/o- > *kalu\bar{o}$. Therefore, either we have to suppose that $\chi\lambda\acute{\alpha}\iota\omega$ arose from a $*-ye/o-$ verb built in the history of Greek at a time when the root had already attained the shape $*klaw-$, or else, if $\chi\lambda\acute{\alpha}\iota\omega$ is very old, we would have to reconstruct a full-grade $*-ye/o-$ present $*kleH_2u-ye/o- > *kla\ddot{u}-ye/o- > *klaw-ye/o- > \chi\lambda\acute{\alpha}\iota\omega$.

It is clear that $\chi\alpha\acute{\iota}\omega$ ‘burn, kindle’ derives from $*kaw-ye/o-$. Kiparsky (1967: 627–8) shows how the sigmatic aorist of this same root can be reflected in $\acute{\epsilon}\chi\eta\eta\alpha$, which goes back to $*ek\bar{a}wa < *ekahwa < *ekawha < *e-kaw-s-a$. The usual outcome of aorists from $*CVw-$ roots, like $\acute{\epsilon}\chi\lambda\alpha\upsilon\sigma\alpha$, can be explained by supposing

⁸⁶ It is difficult to distinguish between the outcome of a syllabification scheme $*-VH\bar{R}C-$ and $*-VHRC-$ in many Greek contexts; deciding between a reconstruction $*deH_2u-ye/o-$ or $*deH_2w-ye/o-$ is one of the difficult cases, since in the latter scheme we might equally well expect an outcome $*d\bar{a}w-C- < *d\bar{a}w-C- < *deH_2w-ye/o-$ by Osthoff’s Law.

The comparative evidence for the treatment of such configurations is ambivalent. Indo-Iranian suggests a syllabification $*-VH\bar{R}C-$ in Skt $m\bar{a}s$ ‘moon, month’, Av. $m\bar{a} < *meH_1ns-$. On the other hand, a different development is found in Gk gen. sg. $\mu\eta\nu\acute{o}\varsigma$, Aeol. $\mu\eta\nu\acute{o}\varsigma < *m\bar{e}ns-os < *meH_1ns-os$ (evading Osthoff’s Law shortening by virtue of the relative chronology of changes in the $*-ns-$ sequence).

On the face of it, this would speak for a treatment $*d\bar{a}w-C- < *d\bar{a}w-C- < *deH_2w-C-$ in a Greek context, but it is unclear whether we should necessarily expect all resonants, including semivowels, to behave in the same fashion, and so the matter remains far from certain. Peters (1980:37) excludes the possibility of reconstructing a stage $*d\bar{a}w-$, on the basis that Osthoff’s Law did not apply to a $*-Vwy-$ sequence. This contention is based exclusively on the evidence of $\acute{\omega}\acute{o}\nu$ ‘egg’, which goes back to $*\acute{\omega}w\acute{o}n$ by his analysis. However, since the interpretation of the word for ‘egg’ raises many problems (see §3.5.3.3), caution is in order.

If we could be sure of a reconstruction $*deH_2w-ye/o-$ rather than $*deH_2u-ye/o-$, then this would appear to constitute an example of a heavy sequence before $*y$, provided that laryngeals are considered as making heavy sequences in such a context. But the uncertainties in development and chronology make it difficult to use the evidence in this way.

that the aorist marker **-s-* was almost always restored, so that such examples did not undergo the first compensatory lengthening. The root **kaw-* could be derived from a full-grade root **keH₂w-*, in e.g. **e-keH₂u-s-ŋ*. Some measure of support for an Indo-European root of this shape may be found in Latv. *kūla* 'last year's dry grass', from a metathesized root **kuH₂-l-*. Either we have to suppose that the **-ye/o-* verb was formed within Greek from a root with the shape **kaw-*, or, if it is very old, then we would need to reconstruct full-grade **keH₂u-ye/o-* > **kai̯ye/o-* > **kaw-ye/o-* > *χαίω*.

Various Indo-European comparisons have been adduced in order to explain *πταίω* 'nudge, crash into, have bad luck' and *παίω* 'strike, thrust'; the evidence we may bring to bear and the root shape we may reconstruct partly depend on whether we assume that they have a common origin, following Hackstein (1992).

It is typical to compare *παίω* 'strike, thrust' with Lat. *paviō* 'thump, pound, strike'. Beekes (2010:1144) and de Vaan (2008:451–2) derive the Latin and Greek forms from **paw-ye/o-* reflecting a zero-grade formation **pH₂w-ye/o-*, following Schrijver (1991:256). But, as we have already suggested in the phonologically parallel case of *δαίω*, such a development is rather problematical from the point of view of the most probable early pattern of syllabification, and a full-grade analysis might be more plausible in purely phonological terms, if we think that the **-ye/o-* verb itself is inherited directly from Indo-European, i.e. **paw-ye/o-* < **pai̯-ye/o-* < **peH₂u-ye/o-*.

This question is complicated by Hackstein's (1992) argument that *παίω* and Lat. *paviō* are cognate with *πταίω* 'nudge, crash into, have bad luck'. Both sets of forms would be built from a stem **pyeH₂-w-*, which can also be reflected by Lith. *pjáuti* 'cut' (*pjáuna*), which lacks the additional suffixation of Greek and Latin. In turn this stem is to be derived from a more basic root **pyeH₂-*, found in *πτοῶν* 'frighten, scare' < **pyoH₂-eye/o-*, the epic 3rd dual root aor. *κατα-πτή-την* and a few other apparent relic forms from the paradigm of *πτήσσω*, *ἐπτήξα* 'scare; cower'.⁸⁷ On this account, the formal difference between *πταίω* and *παίω* would have to be attributed to the generalization of different anlaut variants from an originally ablauting paradigm with a zero-grade form of the root in which initial **p-* was retained, presumably **pīw-* < **piH₂-w-(+V-)* or **piw-* < **piH₂-u-(+C-)*,⁸⁸ or by dissimilatory loss owing to the following **y* in the verbal suffix. Under this analysis, it would also be necessary to posit a loss of the **y* in the initial cluster of Latin *paviō*.

The chronology of these proposed developments is naturally of interest for our purposes. Hackstein argues that the basic Indo-European root was **pyeH₂-*, and

⁸⁷ From this perspective it seems reasonable to suppose that *κατα-πτή-την* represents a more archaic form of the root in *πτήσσω*, *ἐπτήξα*, lacking a velar extension, and that we should reconstruct **pyeH₂-(k)-*; cf. Toch.B *pyakar* 'they struck down'.

⁸⁸ The only potential evidence for a zero-grade form of this stem, the putative source of the word-initial forms with **p-*, lies in Hackstein's (1992:154–7) interpretation of the Homeric hapax *ἰθυπτῶν* as *ἰθυ-πτῖ-ων* 'striking straight', in place of the usual assumption that the root of *πέτομαι* is involved, i.e. *ἰθυ-πτῖ-ων* 'flying straight'. The persuasiveness of the argument is compromised to a certain extent by the necessity of assuming that the root-initial **pt-* of *ἰθυπτῶν* was taken over from full-grade forms. The unsupported nature of the putative zero-grade root shape with initial **p-* rather than **pt-* is a cause for concern.

that this was extended with *-w-, either in the very early history of a few individual languages, or in late Indo-European, giving **pyeH₂-w-*, from which basis Greek and Latin independently created **-ye/o-* formations. If this scenario is accurate, then chronological considerations would militate against using *πταίω/παίω* to posit a productive full-grade **-ye/o-* formation for Indo-European. Even if the agreement of Latin *paviō* and *παίω* is given greater weight, and is taken as allowing for the reconstruction of **p(y)eH₂-u-ye/o-* in Indo-European itself, the conclusions we could draw from this would be limited: whether or not we accept Hackstein's particular interpretation of the historical morphology or the root's external connections, it is difficult to see how we could realistically take **p(y)eH₂-w-* as a monomorphemic underived verbal root, given that it does not respect typical constraints on Indo-European root structure; so the most we would be able to conclude would be that a full-grade root was possible in secondary (perhaps deverbative) **-ye/o-* formations, and we would not automatically be entitled to assume that a full-grade formation was possible for the primary **-ye/o-* formation as well without clearer evidence.

The root **gaw-* in *γαίων* 'rejoicing' (Hom.) might go back to a similar root shape **geH₂-w-*, since we can compare *γάνυται* 'rejoice, be glad' and the adjective *γαῦρος* 'haughty, exulting' (see LIV² 184 and Beekes 2010:260–1 s.v. *γάνυται*). Given that this root is only found in Greek, it is possible that we should simply reconstruct **gaw-ye/o-* rather than supposing a root with a laryngeal or an ancient full-grade formation.

Another potential full-grade **-ye/o-* verb with a root confined to Greek may be found in *γλάσσω* 'shine' (Hsch.), cf. *γλαυκός* 'blue-green, grey' (Hom. etc.). Perhaps *γλάσσω* is primary and indicates a root **gleH₂wk-* (though such a root shape is highly unlikely), or perhaps it is denominative and built from *γλαυκός* < **gleH₂w-ko-*. It is difficult to know whether the verb is truly very old. The root is only found in Greek. The verb is only found in Hesychius and could have been built analogically. Beekes (2010:274–5) considers an Indo-European origin unlikely. But whatever the truth of this may be, we cannot use this evidence to understand the morphology of **-ye/o-* verbs, and its contribution to our understanding of the original behaviour of **i* and **y* must be judged in the context of its weak and late attestation.

There is no comparative evidence in any other Indo-European language for **-ye/o-* verbs corresponding to *δαίω*, *κλαίω*, *καίω*, *γαίων*, or *γλάσσω*. For this reason, it is difficult to be sure whether we should reconstruct full-grade formations such as **deH₂u-ye/o-*, **kleH₂u-ye/o-*, **keH₂u-ye/o-*, **geH₂u-ye/o-*, and **gleH₂uk-ye/o-*, rather than supposing that each of these formations was built in the history of Greek from the roots **daw-*, **klaw-*, **kaw-*, **gaw-*, and **glawk-* respectively. The only potential word equation in this category of evidence is *παίω* beside Latin *paviō*, though, as we have seen, issues of chronology and derivational history make it difficult to apply findings from this form to the Indo-European primary **-ye/o-* formation more generally. Therefore, the evidence of these examples provides only a very weak basis for supposing that Indo-European could build full-grade primary **-ye/o-* verbal formations. Of these examples, only *γλάσσω* would constitute a potential counterexample to Sievers' Law, and the weak and late attestation limits the use we may make of it.

7.2.3.4. Examples with Stop-final Roots

We find various examples of apparent full-grade **-ye/o-* verbs built from stop-final roots: δρέπτω ‘pluck, cut off’, ἔρδω ‘work’ (apparently < **werg-ye/o-*), ῥέζω ‘perform sacrifices’, ῥέζω ‘dye’, πτήσσω ‘scare, alarm’, ἐρέπτομαι ‘feed on’, κλέπτω ‘steal’, λεύσσω ‘see’, ἔρρω ‘go (away), disappear, go to ruin’ (< **wert-ye/o-*). Not all of them appear to be equally ancient, and it is worth examining the evidence of each in turn.

7.2.3.5. δρέπτω

It is reasonably clear that δρέπτω ‘pluck, cut off’ does not go back very far, since it is transparently formed secondarily from the synonymous Homeric verb δρέπω, and is only attested in poetic contexts from the Hellenistic period, e.g. in Moschus.

7.2.3.6. ἔρδω and ῥέζω

We find ἔρδω alongside a parallel formation ῥέζω in Homer. Both can have the fairly general meaning ‘do’ but also have a specialized usage to describe the performance of a sacrifice.

It is generally assumed that ἔρδω is from **werzde/o-* < **werg-ye/o-*; for the phonological development possibly compare ἄρδα ‘dirt’ (f.), which has a short final *-a* and so is assumed to derive from **arzda* < **ard-ya* (cf. ἄρδαλος ‘person living an impure life’).⁸⁹

These present stem forms are thought to be secondary for a number of reasons, in particular because we have evidence, both within Greek and outside, that the **-ye/o-* present from this root was originally based on the zero grade. In Mycenaean Greek we find ample evidence to this effect: e.g. 3rd sg. <*wo-ze*> from **wrg-ye/o-*; cf. inf. <*wo-ze-e*>, pple <*wo-zo-me-no*>. The antiquity of the Mycenaean formation is confirmed by comparable **-ye/o-* formations in Goth. *waúrkeiþ* and Av. *varəziieiti* < **wrg-ye/o-*.

Even if the full-grade presents are secondary, we still need to understand how and when they were formed. As we have said, if a stage **werg-ye/o-* is needed to explain ἔρδω, then this might still pose a problem for anyone assuming Sievers’ Law, depending on the chronology of developments.

Bader (1965:4–10) explained these two new presents as being built in quite different ways. At no point did she posit a form **werg-ye/o-*. According to her analysis, ῥέζω replaces **wrazdē/o-* < **wrg-ye/o-*. The *e*-vocalism arises because ῥέζω is built from the *s*-aorist formation ῥέζα, which may have been inherited from Indo-European (Bader 1965:5–6). On the other hand ἔρδω is a remodelling of **warzdō* or **wordzō*, another outcome of **wrg-ye/o-*, under the influence of the vocalism in the noun ἔργον ‘work’.⁹⁰ The aor. ἔρξα is considered an innovation built on the new present **erzdō*.

If this is the correct explanation of these forms, then a number of points should be made in relation to the antiquity of the full-grade formation. Mycenaean shows an archaism, which has been replaced in first-millennium Greek

⁸⁹ Note that Beekes (2010:127) considers a Pre-Greek origin to be a possibility as well.

⁹⁰ Presumably, despite the influence of the noun, ἔρδω is not a denominative.

texts. Obviously we cannot assume that Mycenaean necessarily reflects the state of all Greek dialects of the same period.

However, in the absence of any other evidence, it would be difficult to argue that other contemporary Greek dialects had already developed $\xi\rho\delta\omega$ or $\rho\acute{\epsilon}\zeta\omega$. Since post-consonantal *y is being eradicated or has already disappeared in Mycenaean,⁹¹ we have no reason to date the development of $\xi\rho\delta\omega$ or $\rho\acute{\epsilon}\zeta\omega$ to a time before the loss of *y.

Therefore **werg-ye/o-* need not have existed as such: indeed the only dateable evidence speaks against it. Rather, **werzde/o-* could result directly out of a re-modelling of **warzde/o-* or **worzde/o-*. Thus $\xi\rho\delta\omega$ does not constitute a good counterexample to Sievers' Law.

7.2.3.7. $\rho\acute{\epsilon}\zeta\omega$ 'dye'

We find another verb $\rho\acute{\epsilon}\zeta\omega$, which occurs in Epicharmus with the meaning 'dye': $\acute{\alpha}\lambda\lambda\acute{\alpha}\ \kappa\alpha\iota\ \rho\acute{\epsilon}\zeta\epsilon\iota\ \tau\iota\ \chi\rho\tilde{\omega}\mu\alpha$ (fr. 106 in Kassel and Austin 2001). This verb is the equivalent of $\beta\acute{\alpha}\pi\tau\omega$, according to Photius.⁹² It seems pretty unlikely that this represents a specialization of the verb $\rho\acute{\epsilon}\zeta\omega$ 'do', since within Greek we may compare $\rho\acute{\epsilon}\gamma\omicron\varsigma$ (Anacr.), $\rho\acute{\eta}\gamma\omicron\varsigma$ 'blanket, carpet' (Hom.), though there is no satisfactory explanation for the long vowel in $\rho\acute{\eta}\gamma\omicron\varsigma$. It is also usual to compare $\rho\acute{\epsilon}\zeta\omega$ with Ved. *rajyate* 'paint oneself, redden oneself, become excited', *rāga-* 'dyeing; pigment' (Br.), and attribute Indo-European antiquity to the formation (see e.g. Beekes 2010:1279, LIV² 587).

However, this comparison brings with it some difficulties. In order to explain the lack of a prothetic vowel before an initial $\rho\acute{-}$ in Greek it is usual to suppose a root-initial *s-, but in order to explain the absence of any reflex of *s in Vedic we must suppose *s-mobile, i.e. *(s)*reg-ye/o-*. As Sihler (1973:934–5 n. 1) pointed out, *s-mobile is vanishingly rare before *r in Indo-European, with only one other potential example, which is based on the same correspondence of a Greek and Vedic word-initial r-, but is far less persuasive.⁹³

There are additional problems with the Indo-Iranian evidence. From Epic Sanskrit onwards, forms begin to appear with a nasal in the root *rañj-*, e.g. *rañga-* 'colour, paint, dye, hue'. These have usually been taken to be later innovations (see Jamison 1983:152). But such a view is difficult to reconcile with the fact that we also find a nasal in this root in Iranian, e.g. Modern Persian *rang* 'dye, pigment, colouring', MMP *rng*, and conceivably represented in Elamite <*ha-ra-an-za-na-um*> = *āranjanam*, if it is an Old Persian borrowing. It would be equally possible to see the zero-grade from a root **rng^(w)-* in examples such as the past pple *raktá-* (Br.).⁹⁴

⁹¹ See Lejeune (1972:165–73).

⁹² $\rho\acute{\epsilon}\zeta\epsilon\iota\ \pi\omicron\iota\eta\sigma\alpha\iota\ \pi\rho\acute{\alpha}\zeta\epsilon\iota\ \acute{\Lambda}\theta\eta\nu\alpha\iota\omicron\iota\ \delta\epsilon\ \theta\upsilon\sigma\alpha\iota\ \pi\alpha\rho\ \acute{\epsilon}\pi\iota\chi\acute{\alpha}\rho\mu\omega\ \tau\omicron\ \beta\lambda\acute{\alpha}\psi\alpha\iota$ (Photius, *EM* 703.27).

⁹³ The potential parallel is $\acute{\alpha}\nu\alpha-\rho\rho\iota\chi\acute{\alpha}\sigma\omicron\mu\alpha\iota$ 'climb with hands and feet' beside Skt *riṅgati* 'creep, crawl' and *riṅkhati* 'move, crawl'. The correspondence is terribly uncertain: on the one hand, it is not clear which root-final velar has a claim to historical priority in Sanskrit, and on the other hand, it is far from clear that we should set up a regular correspondence between a voiceless aspirated velar in both Sanskrit and Greek.

⁹⁴ A reconstruction with a nasal would be incompatible with Jamison's (1983:151) restoration of impv. act. **rājaya* for the Vedic hapax *-aya-* formation *rajaya* (AV 1.23.1). On the other hand, the

If the comparative support for ῥέζω is removed, then its status as an example of an ancient full-grade **-ye/o-* present is undermined to a considerable extent. Even if we continued to accept the morphological analysis, it would no longer be possible to use the example to throw light on the Indo-European situation. But if we now simply have a Greek root **reg-*, then the fact that it shows an *e* vowel rather than a 'zero grade' form loses significance, for we cannot be sure that this root was capable of assuming a reduced form, even in principle.

7.2.3.8. πτήσσω

As we have already seen (§7.2.3.3 and §7.1.11.2), there are reasons to believe that the root-final velar in this family of words is a relatively recent addition. Hackstein (1992) argued that the **-k-* cannot be part of the root, since we find in Homer the 3rd dual. aor. κατὰ-πτήτην and perf. pples. πεπτηώς. He suggests a root **pyeH₂-*, and compares ποῶν 'frighten, scare' which can be an iterative-intensive form < **pyoH₂-eye/o-*. He argues that the additional **-k-* originated in the aorist and then spread; for the formation cf. Lat. *fē-c-ī*, Gk *ἔ-θη-κ-α*, and, in relation to this root specifically, Toch.B *pyakar* 'they struck down'.

There is support for supposing that the aorist was of central importance to the development πτήσσω, because ἔπτηξα is overwhelming more frequent than the present stem πτήσσω (by a ratio of at least six to one). Given that the root vocalism of the present matches that of the sigmatic aorist, and given that the root-final velar might originate in the aorist, we have to consider the distinct possibility that the vocalism of the present is also based on the aorist (see Hackstein 1992:136–65).

There are also semantic peculiarities which point in the same direction. We find a transitive causative meaning 'scare someone' in e.g. Il.14.40 but an intransitive non-causative meaning 'cower, be scared' in E.Ba.1035 and Ar.V.1490. The causative meaning is only found in the aorist, but this may simply reflect the paucity of examples of the present stem. In any case, given that an agentive meaning 'scare someone' was clearly available for this stem, the intransitive meaning 'be scared' with an *experiencer* subject argument is somewhat unexpected for a supposed **-ye/o-* present. We have tentatively argued that when both an *agent* and *experiencer* argument were available, the *agent* argument seems to be preferentially realized as the subject of a **-ye/o-* verb.

In view of all these considerations, it seems fairly clear that we cannot straightforwardly assume that a present stem **pyeH₂-k-ye/o-* is of Indo-European antiquity. It seems pretty certain that πτήσσω was formed at some stage within the history of Greek. This severely limits its value in discussing the nature and extent of inherited full-grade **-ye/o-* formation. It also limits the use we can make of it in any argument about Sievers' Law.

7.2.3.9. ἐρέπτομαι

Hom. ἐρέπτομαι 'feed on' is almost certainly cognate with Lat. *rapio* 'seize, take away', Lith. *ap-rėpti*, and Alb. *rjep* (see Beekes 2010:453, LIV² 507, de

nasal analysis would be compatible with *rajaya* in its attested form with a short root vowel, provided that it belonged to the class of *-aya-* verbs with a zero-grade rather than an *o*-grade root.

Vaan 2008:513–14). The initial vowel of the Greek might indicate an initial **H₁*, or there might just be prothesis before Greek initial **r*. It is difficult to reconcile the vocalisms of the various cognates. Greek can reflect a full-grade formation **(H₁)rep-ye/o-*, but the difficulty in reconciling the vocalism of the Lithuanian and Latin forms has been taken to indicate a root with an internal laryngeal **(H₁)reH₁p-/*(H₁)rH₁p-* (see Schrijver 1991:306). In any event, it is clear that Greek shows a full-grade **-ye/o-* formation, but it is equally clear that this configuration does not receive any comparative support.

7.2.3.10. κλέπτω

We find another clear example of a full-grade **-ye/o-* present in κλέπτω ‘steal’ < **klep-ye/o-*. Other ablaut grades of this root were available in Greek; cf. the zero-grade form of the root in the 2nd aor. pass. ἐκλάπην. Furthermore, Toch.B *kālypītsi* ‘steal’ agrees precisely with κλέπτω in reflecting full-grade vocalism and **-ye/o-* suffixation, and this might seem a reasonable basis for reconstructing this formation for the parent language.

However, Hackstein (1995:216–17) considers these present formations to be innovations for two reasons. On the one hand, he argues that an old deverbal **-ye/o-* formation would have required a zero-grade rather than a full-grade root; this is a criterion we can hardly employ, since it begs one of the very questions we are hoping to answer. The second objection has a comparative basis. The equivalent present formations from this root in Latin and Germanic do not involve the **-ye/o-* suffix but are full-grade thematic presents; cf. Lat. *clepo* ‘steal’ and Goth. *hli-fan*. This is the formation reconstructed for the parent language by LIV² (362–3). Hackstein hesitates to reconstruct a morphological opposition between a full-grade thematic present and a collateral full-grade **-ye/o-* present from the same root in Indo-European, without being able to reconstruct any kind of corresponding semantic distinction; in Vedic **-ye/o-* formations which sit beside thematic formations built from the same root show a fientive value (see Goto 1987:59–60). The full-grade **-ye/o-* present implied by the Greek and Tocharian evidence seems to have exactly the same meaning as the thematic formation implied by the Latin and Germanic evidence. Hackstein hypothesizes that the **-ye/o-* presents in Greek and Tocharian could be secondarily (and independently) built up from the inherited thematic verbal stem with retention of the original root vocalism. In this case the synonymy between the thematic and **-ye/o-* present forms would be understandable.

It certainly seems possible that these full-grade **-ye/o-* formations are secondary, but it is by no means a necessary conclusion. Word equations are not to be dismissed lightly, and so we ought to count κλέπτω as a serious potential example of an inherited instance of such a formation.

7.2.3.11. λεύσ(σ)ω

The problem that λεύσ(σ)ω⁹⁵ ‘see, look’ poses for Sievers’ Law is more serious than that of ἔρδω. There are no Mycenaean data to help us, and there is less

⁹⁵ We find two spellings for this word in the manuscripts of Homer: λεύσσω and λεύσω.

certainty about the root from which it is formed. This verb is usually thought to be a **-ye/o-* present built from the Indo-European root **lewk-/*luk-* ‘bright, shiny’; cf. Skt *lokate* ‘see’, *rócate* ‘shine’, Hitt. *luk-zi*, Lat. *lūceō*. The root is attested elsewhere in Greek: e.g. in the adjective *λευκός* ‘bright, distinct’.⁹⁶ Insofar as *λεύσσω* shows a diphthong preceding the products of palatalization, it suggests a reconstruction **lewk-ye/o-*, which is a clear counterexample to Sievers’ Law under any formulation we might devise.

However, the etymology is not as clear as is sometimes suggested. In Arcadian we find two verb forms apparently built from a root *λευτ-*: *λευτοντες* and *λευτον*. These seem to be best interpreted as meaning ‘see’ (Morpurgo Davies 1987: 462–3). Morpurgo Davies argues that the most satisfactory solution may be to suppose a connection between *λεύσ(σ)ω*, *λευτοντες*, and *λευτον* on the basis of their formal and semantic similarity. If we accept this view, then the traditional etymology linking *λεύσ(σ)ω* with the root **lewk-/*luk-* would have to be abandoned.

As Morpurgo Davies suggests, it is possible that the Arcadian forms and Homeric *λεύσ(σ)ω* could represent independent remodellings of an original root present, and there is no guarantee that the suffix **-ye/o-* was involved. The sibilant in *λεύσ(σ)ω* could conceivably arise through levelling from an athematic present form such as **lews-ti < *lewt-ti*. In view of all the uncertainties concerning this verb, it might not be advisable to use it as a counterexample to Sievers’ Law.

7.2.3.12. ἔρρω

Forssman (1980) showed clearly that *ἔρρω*, ‘go (away), disappear, go to ruin’ ought to go back to **wert-ye/o-*; cf. Locr. *φερρέτω*, El. *φαρρεν* (inf.). All dialects show a geminate *-ρρ-*, and so we cannot simply suppose that the verb goes back to a form with an **-rs-* cluster. Therefore Forssman proposes that the cluster **-rty-* > *-ρρ-* instead of the expected **-rs-*.⁹⁷

Clearly **wert-ye/o-* would constitute an example of a full-grade **-ye/o-* formation, and, at the same time, a counterexample to Sievers’ Law. We would like to know, therefore, how old this formation is likely to be.

Interestingly, there might be a way of addressing the issue of chronology by looking once again at semantic behaviour. This verb is usually used of metaphorical motion, often in imprecations; the subject of the verb does not appear to be an *agent*, because it is practically always used of involuntary motion, or can be interpreted as indicating such, e.g. *ἔξ οἴων καλῶν ἔρρεις*, ‘Orestes, from what good fortune have you fallen’ (E.IT.379), *ἔρρέτω Ἴλιον* ‘perish, Troy!’ (S.Ph.1200), *ἔρρ’ ἐς κόρακας* ‘go to the crows!’ (Ar.Pl.604), *ἔρρει δὲ τὰ θεῖα* ‘the honour due to the gods has perished’ (S.OT.910), *ἄφαντος ἔρρει θανάσιμῳ χειρώματι* ‘he disappeared from sight by fatal violence’ (S.OT.560), etc. Such examples show every indication of having *theme* rather than *agent* subjects. This goes against the semantic patterns which we have seen among the zero-grade primary **-ye/o-* verbs for which we have word equations, and among those which are built from verbal roots supported by comparative evidence. It also goes against the pattern seen in early **-ye/o-* denominatives. This behaviour is more reminiscent of semantic

⁹⁶ See Chantraine (1999:632–3).

⁹⁷ For discussion, see CEG 11 (2006:352–3).

patterns that we have seen in secondarily derived formations. There is a strong basis for arguing that **wert-ye/o-* was not formed until after the ancient semantic patterns associated with **-ye/o-* verb formation had broken down. It seems most unlikely that a formation like this could be reconstructed for Indo-European itself.

7.2.3.13. Miscellaneous Forms

Some recognize as **-ye/o-* verbs ἔζομαι ‘seat oneself’ and πιέζω ‘squeeze, press’. But depending on the view we take of their etymology, these may contain the sequence **-sd-* rather than **-C-ye/o-*.

Beekes (2010:376) assumes that ἔζομαι comes from a full-grade **-ye/o-* present **sed-ye/o-*, parallel to ON *sitja*, OHG *sizzen*. However, LIV² (514 n. 4) is sceptical and deems ἔζομαι a secondary present analogically built from the aorist ἐζόμην < **se-sd-e/o-*. The only basis for deciding between these analyses will involve a realistic and independent assessment of the strength of the evidence for full grade **-ye/o-* presents.

A root **pisd-* has been supposed for πιέζω on the basis of the seemingly close connection with Ved. *pīdayati* ‘squeeze, press, hurt’, which could go back to **pisd-* (see EWAia II 136–7). However, it is unclear to me exactly how πιέζω could reflect **pisd-*; it could not reflect a full-grade form **pi(y)esd-*, because there are no examples of a word-initial **Cy-* cluster being realized as a separate syllable in Greek. Furthermore, the origin of the variant πιάζω (e.g. in Alc. and Alc.) remains unexplained. We clearly cannot use this verb in our enquiry.

7.2.3.14. Conclusions on Stop-final Roots

The somewhat surprising outcome of this brief survey of the evidence is that, leaving aside the well-attested group of **TeT-* roots, it is hard to reconstruct stop-final full-grade **-ye/o-* verbs for Indo-European, or even for the earliest stages of Greek. Many of the relevant forms are demonstrably late formations. The better examples are merely isolated and unsupported by any comparative evidence. Only κλέπτω showed evidence that it might be inherited.

7.2.3.15. Examples with Resonant-final Roots

In distinct contrast to the dearth of examples of full-grade formations from stop-final roots, when we look for full-grade **-ye/o-* verbs from *resonant*-final roots, we find a proliferation of examples:

ἀγείρω ‘gather’ < **ager-ye/o-* (< **H₂ger-ye/o-*?);

ἀείρω ‘lift; bind together, join’ < **H₂wer-ye/o-*;

ἐγείρω ‘awaken’ < **H₁ger-ye/o-*;

εἴρω ‘string together’ < **ser-ye/o-*;

θείνω ‘strike’ < **g^{wh}en-ye/o-*;

κείρω ‘crop, shave’ < **(s)ker-ye/o-*;

κτείνω ‘kill’ < **kten-ye/o-*;

μέλλω 'be about to, etc.' < **mel-ye/o-*;
 μείρομαι 'take as one's share, divide' < **smer-ye/o-*;
 πείρω 'pierce' < **per-ye/o-*;
 τείνω 'stretch' < **ten-ye/o-*;
 τείρω 'wear out, distress' < **terH₁-ye/o-*;
 στέλλω 'equip' < **stel-ye/o-*;
 -φθείρω 'destroy' < **d^hg^{wh}er-ye/o-*;
 (ὀ)κέλλω 'run aground' < **kel-ye/o-*;
 σκέλλομαι 'be parched' < **skelH₁-ye/o-*;
 Arc. δέλλω/ζέλλω 'throw' < **g^wel-ye/o-*;
 εἶλλω 'squeeze' ← **wel-ye/o-*;
 ἀμείρω 'bereave' < **amer-ye/o-*;
 σπείρω 'sow seed' < **sper-ye/o-*;
 δείρω 'skin, flog' < **der-ye/o-*;
 εἶρω 'say, tell' < **werH₁-ye/o-*.

This pattern of attestation is all the more striking given that, when we looked at the categories of evidence for zero-grade **-ye/o-* verbs, there was a consistent bias in the opposite direction, i.e. there were typically considerably more stop-final stems than resonant-final stems.

This very strong bias in the full-grade formation in favour of resonant-final stems has every appearance of a productive class within Greek. The formation of fresh analogical examples could be an ongoing process, in that we find δείρω 'skin, flog' (Hdt.), which clearly arises in competition with δέρω (Hom.). Furthermore, some of these roots do not have known cognates outside Greek, e.g. ἀείρω μέλλω, Arc. δέλλω/ζέλλω for βάλλω, and ὀφέλλω. Such examples cannot be used to support the reconstruction of a full-grade **-ye/o-* formation for Indo-European.

In other cases there are cognate roots, but only Greek uses the root in the verbal system, e.g.:

ἀγείρω, cf. Ved. *grāma-* 'train, troop', Lat. *gremium*, etc. (LIV² 276, EWAia I 507–8, de Vaan 2008:272–3);
 σκέλλομαι, cf. MHG *schal* 'dry, barren', Eng. *shallow*, Latv. *kāls* 'meagre';
 ἀμείρω, may be an innovation resegmented from ἀμέρδω 'deprive of', cf. Lat. *mordeo* 'crush, bite' etc.

These too will not prove the best material for reconstructing the Indo-European situation.

Other roots have verbal cognates, but there are no **-ye/o-* formations of any kind in other languages, e.g.:

ἀείρω, possibly cf. Lith. *vėrti* 'pierce, string', OCS *obora* 'string, twine' < **obvora*;
 cf. also the thematic present in Alb. *vjerr* 'suspend';
 ἐγείρω, cf. perf. ἐγρήγορα, Ved. *jāgāra* < **H₁ge-H₁gor-*;

θείνω, cf. aor. ἔ-πε-φν-ον, φόνος ‘murder’, Ved. *hánti*, *ghn-ánti*, etc.;⁹⁸

κείρω, cf. Arm. *k’erem* ‘scratch, shave’ and with s-mobile Lith. *skirti*, OHG *sceran* ‘shave’, etc.;

κτείνω, cf. κτείνυμι, Ved. *kṣānóti* ‘injure’, etc.;

πείρω, cf. διαμπερές ‘right through, continuously’, πόρος ‘passage, ford, way’, Ved. *píparti* (aor. *párs-*) ‘bring across’, Lat. *portāre*;

-φθείρω, cf. Aeolic φθέρρω (Hdn.), Skt *kṣárati* ‘flow away, disappear’, Av. *γžaraiti* ‘flow, stream’;

ὀκέλλω ‘run aground’, cf. Goth. *haldan* ‘pasture cattle’, Lat. *celer* ‘swift’, perhaps Skt *kālaya-* ‘drive, impel, bear’ (see LIV² 348);

σπείρω, cf. σπέρμα ‘seed’, σπόρος ‘seed’, σπαρτός ‘sown’, Hitt. *išpār-* ‘strew’;

τείρω, cf. τε-τρ-αίνω ‘bore through, pierce’, aor. ἔτρησα (< **e-trH₁-s-η*), Lat. *terō* ‘rub’ (see LIV² 632–3);

μείρομαι, cf. Lat. *mereō*.

Sometimes, we find a *-ye/o- present from a cognate root, but the vocalism does not agree:

ἔζρω ‘string together’ cf. perf. ἔ-ερ-μένος, Lat. *serō* ‘link, join’, Arm. *y-eřum*; Kloekhorst (2008:727) compares in addition Hitt. *šarije/a-* ‘embroider (?)’, sew up (?), etc.’ from a zero-grade formation **sr-ye/o-*.⁹⁹

Out of all of these examples, we only find three word equations:

τείνω (cf. τάνυται, Ved. *tanóti*, etc.) which agrees with Alb. *ndej*, which can come from **en-ten-ye/o-*;

στέλλω ‘put in order, equip, dispatch’ (Hom.), which agrees with OCS *po-steljō* ‘spread’ etc.;¹⁰⁰

εἶρω ‘say, tell’ < **werH₁-ye/o-*, which agrees with Hitt. *weriye/a-* (provided we accept the validity of Pinault’s rule).¹⁰¹

If we feel that we can reconstruct **stel-ye/o-*, **ten-ye/o-*, and **werH₁-ye/o-* on the basis of these data, and if we are satisfied that these corresponding collocations of root and suffix are not coincidental, then, perhaps together with **klep-ye/o-*,

⁹⁸ We might attempt to compare θείνω directly with Lat. *de-fendo*, reconstructing **g^{wh}en-ye/o-*. However, such comparison would assume a Latin sound change **-ny-* > **-nd-*. The only other potential evidence for such a development would be τείνω ‘stretch’ beside Lat. *tendo* ‘stretch’. However, these are more likely to contain a -*d-* suffix.

⁹⁹ Barton (1987) argued that this root was lacking a present in Indo-European and that the individual daughter languages innovated, including Greek. This latter supposition is reasonable, given the lack of any morphological agreement among the daughter languages when it comes to the formation of the present.

¹⁰⁰ The allegedly Aeolic spellings with σπελ- (Hsch.) would suggest a labiovelar in the root, i.e. **sk^wel-*; cf. σπόλα (Sapph.) for Att.-Ion. σπολή ‘armour’. It is not clear how seriously to take these.

¹⁰¹ It is worth noting that Kloekhorst (2008:1002–3) thinks that the full-grade vocalism in the Hitt. *-ye/o- form is secondary and based on the generalized full grade in an old root aorist (attested only in the pple *werant-*).

these constitute the very small class of reconstructible full-grade **-ye/o-* verbs in Greek, where the vocalism is not in some obvious way phonologically dictated by the structure of the root, as it was in the case of the **TeT-* roots.

7.2.3.16. *The Relevance for Sievers' Law*

The outcome of these investigations is directly relevant to our understanding of the possible continuation of Sievers' Law. If at a very early stage the class of full-grade **-ye/o-* verbs was more or less restricted to the small inherited class of **TeT-* roots, on the one hand, and this growing class of resonant-final roots, or roots that became resonant-final after laryngeal deletion, on the other hand, then this would have the effect of ensuring that we would find light sequences preceding the **-ye/o-* suffix in this formation. This new and expanding class seems to be composed only of roots with the shape **(C)CeR-* or **(C)CeR(H)-* with the laryngeal deleted, and, in consequence, light sequences always result.

This pattern offers a fundamental explanation of why heavy sequences are unexpectedly scarce among the full-grade **-ye/o-* verbs.

7.2.4. Evidence for an *o*-grade Formation

It is worth pointing out that we find at least one Greek **-ye/o-* verb with an *o*-grade vocalism. The only reasonably secure example is *κόπτω* 'strike, beat' (Hom. etc.) < **(s)kop-ye/o-*; cf. OCS *kopajǫ* (*kopati*), and with the **-ye/o-* suffix cf. Lith. *kapiù* (*kàpti*)—see LIV² (555).

However, Greek formations from this root generally show an *o*-vocalism in the root, e.g. *κόπος* 'striking, beating' and its many derivatives, *κοπή*, *κοπῖς*, *-ῖδος*, *κόμμα*, *κοπτός*, *-κόπτης*, etc. Cognate forms with *e*-vocalism seem to exist in Greek, but they are further differentiated by having a word-initial *σ-*; cf. *σχέπαρον*- 'carpenter's axe, etc.' (Hom. etc.). Also with root-initial *s-*, cf. Russ. *ščepá*.¹⁰²

It seems likely that from a Greek perspective there were two separate roots: *κοπ-* with an invariant *o*-vocalism and *σχεπ-*. It would not be unexpected for **kop-ye/o-* (> *κόπτω*) to be formed *within* Greek, if the root was invariant at the time. On the other hand, if *κόπτω* and Lith. *kapiù* (*kàpti*) are truly cognate, rather than independent formations, and we reconstruct a primary verb **kop-ye/o-* for Indo-European, then this would represent a unique mode of formation. We might consider the possibility that **kop-ye/o-* was an Indo-European denominative from a root noun or thematic noun with *o*-grade vocalism, but this is mere speculation.

For reasons already discussed, we do not need to include examples such as *ἀρούω* and *χρούω* among the *o*-grade **-ye/o-* formations, since I would argue that they need not be **-ye/o-* verbs at all.

¹⁰² It is difficult to suppose that *σκάπτω* is also related, since, on formal grounds, it would be hard to understand the *a*-vocalism in the root. Furthermore, *σκάπτω* means 'dig, delve, cultivate by digging'; while it is not hard to see how the semantics of *σκάπτω* and *κόπτω* might be reconciled, they hardly present a compelling case for comparison in the first place.

7.2.4.1. Vine's Examples

Vine has argued for the reconstruction of three extra *o*-grade *-ye/o- formations. However, in each case these are examples illustrating his claimed change of a sequence *-oly- > *-uly-.

For example, μύλλω 'have sex' (Theoc.4.58.) can belong with μύλη 'mill, millstone', with an original meaning 'grind', *vel sim.* (see Beekes 2010:979–80). Vine (1999:565) explains the *u*-vocalism as arising regularly in a sequence *-uly- < *-oly-, i.e. μύλλω < *mul-ye/o- < *mol(H)-ye/o-, from the root *melH- (cf. zero-grade forms in OHG *muljan* 'crush', Welsh *malu*, Arm. *malem* 'grind', etc.). Hitt. continues an *o*-grade form *malla-* < *molH-ei. If this is how the vocalism came about, then we would have to assume that μύλη came under the influence of the verb's vocalism.

Vine (1999:570–1) also connects σῦρω 'drag, pull, draw, sweep' with σαίρω 'sweep (out)' (< *twr̥-ye/o-), reconstructing an *o*-grade formation *twor-ye/o- which yielded *twur-ye/o- by his rule of *o > *u raising.

There is no good etymology for σκύλλω 'lacerate; trouble, vex' (A. etc.). But, given his rule of *o > *u raising, Vine (1999:565ff.) can reconstruct *skol(H)-ye/o-, comparing Lith. *skėlti* 'split', the zero-grade formation σκάλλω 'stir up, hoe', and Hitt. *iškalla-* 'tear' (see Kloekhorst 2008:399).

All this seems possible. But it is a disturbing feature of the theory that three out of the four attested *o*-grade *-ye/o- formations in Greek are reconstructed as examples of this putative sound change. It would be useful to see how much evidence there is for **o*-grade *-ye/o- verbs outside Greek, so that we could assess whether such formations should be posited for the parent language.

7.2.5. Conclusions

This investigation of the morphology of the Indo-European primary *-ye/o- formations has revealed that the *-ye/o- suffix attached primarily to zero-grade roots. The only zero-grade root shape which could yield a potentially heavy sequence is *CRHC-; no examples of this type could be reconstructed for Indo-European, and only a couple of examples arose at all.

Greek inherited a full-grade *-ye/o- formation from Indo-European, but only regularly among roots with the shape *TeT-, which constitutes a light sequence. Perhaps three or four other full-grade *-ye/o- formations are reconstructible (and with an absolutely minimal level of evidence at that). Of these, three had resonant-final roots or roots which became resonant-final, and from this small core of examples a newly founded Greek full-grade formation emerged secondarily.

Given all of this, there is no reason to suppose that the primary *-ye/o- verbs were insensitive to the conditions of Sievers' Law on the basis of what we have seen. We could equally consistently suppose that we find only primary *-ye/o- verbs and never primary *-iye/o- verbs in Greek, because the phonological conditions under which *-iye/o- verbs could have arisen did not pertain at an early stage, assuming for a moment that Sievers' Law can be reconstructed for the earliest stage of development.

7.3. SOME ETYMOLOGICALLY DIFFICULT EXAMPLES

Some forms are difficult to categorize as full-grade or zero-grade, primary, denominative, or deverbative, either because there is no convincing Indo-European etymology, and so we do not know what the earliest shape of the root might have been, or there is a disputed and difficult etymology, whereby different evidence points to different root shapes.

An indirectly attested example may be found in *μασάομαι* ‘chew, bite’ (Eup., Ar., etc.), perhaps secondarily extended from a stem **mat^h-ye/o-*, just as *φῦράομαι* ‘knead, soften’ seems to be based on *φῦρω* ‘mix, wet, sully’ < **p^hur-ye/o-* (see Frisk 1991:179–80). The reason for supposing a Greek root **mat^h-* comes from the Hesychian gloss *μάσθαι· γνάθοι* ‘jaws’. The dental articulation could be supported by *μάσταξ* ‘mouth, mouthful’ (S. etc.), which could be from **mat^h-t-*. However, there are considerable difficulties when it comes to understanding the potential Indo-European cognates.

Narten (1960) argued that Vedic had two distinct *set* roots, *math-* ‘rob, snatch’ and *manth-* ‘swirl, whisk, etc.’, which LIV² (442–3, 438–9) reconstructs as **metH₂-* and **mentH₂-* respectively. The first of these seems semantically compatible with *μασάομαι* ‘chew, bite’, if we could imagine ‘biting’ being metaphorically related to the idea of snatching pieces of food. This is the etymological connection assumed by LIV², reconstructing **m_etH₂-ye/o-* > *μασ-*. However, it is unclear why there should be a prop-vowel in the first syllable, since either **metH₂-ye/o-* or **m^otH₂-ye/o-* should have been just fine in phonological terms in Indo-European and in Greek. It might be more convincing to suppose that the Greek *a*-vocalism originates in an analogical compromise forced by synchronically unsupportable allomorphy in the root **met^h-/*at^h-* < **metH₂-/*mtH₂-*. Such putative paradigmatic alternation would be unparalleled in a **-ye/o-* formation, and we would probably have to suppose that Greek actually inherited an ablauting athematic present stem which compromised on a root **mat^h-* and then developed a **-ye/o-* present from this. So, on this account, although the root may have Indo-European ancestry, at best, the form in which this verb is attested would have a purely Greek root shape.

An alternative would be to connect the Greek root **mat^h-* with Ved. *manth-* ‘swirl, whisk’, leaving aside, for a moment, any semantic misgivings we might have about such a connection. We could suppose that **mntH₂-ye/o-* gives **mat^(h)-ye/o-*, provided that we explain the lack of a Greek vowel reflex from the laryngeal in this position by Pinault’s rule. Hsch. *μάσθαι* would have to represent a form of the root where the post-consonantal laryngeal survived long enough to leave a reflex in the aspiration of the dental stop, always assuming we accept the possibility of such aspiration in Greek. It might be that *μασάομαι* would have constituted a counterexample to Sievers’ Law, unless we assumed with Pinault that laryngeal loss after a consonant and before **y* preceded the operation of Sievers’ Law.

Even if such a connection can be made to work formally, the etymology seems very difficult to accept in semantic terms, since a development ‘swirl’ → ‘chew’ or vice versa is difficult to explain.¹⁰³

¹⁰³ De Vaan (2008) takes a slightly confusing line on the origins of Lat. *mandō* ‘chew, eat’. On the one hand he states that the semantic connection with the Sanskrit root meaning ‘swirl, whirl’ rather

Beekes (2010:909) views the evidence for a change $*-tH_2- > *-t^h-$ as uncertain, and so rejects a connection with Ved. *math-*, and presumably by the same token would find a connection with Ved. *manth-* equally unacceptable. It seems just as difficult to accept any connection with Germanic forms such as OHG *mindil*, ON *mél* ‘bit of a bridle’ $< *ment-$, Goth. *munþs* ‘mouth’ $< *munt-$, since the Greek aspirated dental is left totally unexplained. The possible connection with Lat. *mandō* ‘chew, eat’, on the face of it, would seem to be compatible with a root $*mH_2d^h-$ (see Schrijver 1991:222), provided that we accept that the laryngeal would be expected to yield a vocalic reflex in this context. But there is no other evidence for such a root, and the origin of the Latin root is disputed (see n. 103).

In view of all the uncertainty, it is perhaps best not to invest any confidence in the Indo-European antiquity of the Greek form, and simply take it as a piece of purely Greek evidence for our immediate purposes.

The origins of *σκάπτω* ‘dig, dig up’ (*h.Hom.* Pi.) are far from certain. It is not clear whether the root-final stop was originally $-\pi-$ or $-\varphi-$; cf. *σκάφος* ‘hull of a ship; digging’ (Hes. etc.) or *σκαπάνη* ‘shovel, spade’ (Theoc.)—whichever was original, the other could be derived plausibly by analogy. The root *σκαπ-* has been connected with Lat. *scapulae* ‘shoulder-blade’, while *σκαφ-* could be connected to Lat. *scabō* ‘scratch’, *scobis* ‘grating, scraping, shaving’, OHG *scaban* ‘shear’, Lith. *skabiū*, (*skōbti*) ‘hollow out’. LIV² (549) reconstructs a root $*skab^h-$, but this is only an option if we are happy to reconstruct verbal roots containing Indo-European $*a$.

De Vaan (2008:541) accounts for the Latin root *scab-* by supposing that an anaptyctic $*a$ emerged in the consonant cluster of a putative $*skbro-$ ‘rough’, but I am not aware of any parallels for such a process in a Greek context. Beekes (2010:1342–3) assumes a European substrate origin, and it is, of course, possible that the Greek and Latin correspondences represent borrowings from a common origin. LIV² (549 n. 1) entertains the idea of a full-grade root shape $*skH_2eb^h-$, and this seems a possibility, though reconstructing a laryngeal in this context would be somewhat arbitrary, given the lack of any independent evidence, e.g. from ablaut. In short, it is difficult to reconstruct this root for Indo-European. Insofar as we assume a root $*skap-$ or $*skab^h-$ for the earliest stage in Greek, the sequence preceding $*y$ in the present stem is light; insofar as we reconstruct a root with a laryngeal, the weight of such a sequence would depend on what grade of the root we assume (which cannot be known from the evidence available) and whether laryngeals in consonant clusters form heavy sequences for these purposes, which is a disputed question. So the confidence we can place in the example is limited, because we cannot be sure of its antiquity or the phonological structure of the root.

It seems that *σφάζω* ‘slaughter, sacrifice’ (Hom. etc.)—cf. aor. *ἔσφαξα*, derived noun *σφαγῆς*, etc.—comes from $*sp^hag-ye/o-$. However, the etymology of the root is unknown and there are no obvious Indo-European cognates.

than ‘rob, snatch’ is the most plausible, though I am not clear about the reasons for this view. But, at the same time, he wants to derive *mandō* from $*mt-n(e)-H_2-$, invoking the sound changes by which Schrijver (1991:498–504) derived *pandō* ‘spread’ from IE $*pt-ne-H_2-til/*pt-n-H_2-enti$. This explanation seems to involve the root $*metH_2-$, which equates to Ved. *math-* $< *metH_2-$, which means ‘rob, snatch’ not ‘whirl, swirl’. In the same entry de Vaan proceeds to reconstruct both sets of meanings for $*mentH_2-$ at various points. So I am a little confused about the position adopted here.

LIV² takes a different approach, suggesting a Latin development $*mat-n-H_2-e- > *matane- > *matne- > mande-$. But this involves setting up a full grade with a -vocalism, which is perhaps less than ideal given the rarity and odd distribution of the reconstructed instances of Indo-European $*a$.

We have no etymology for ψάλλω ‘touch lightly’ (Anacr., A., etc.) but it appears to be built with a **-ye/o-* suffix from a root ψαλ-; cf. aor. ἐψηλα, and the synonymous ψαλάσσω ‘id.’, etc.

Very few overall conclusions can be drawn from such examples, until a more definitive etymological analysis is forthcoming, and so they are best left aside for our purposes.

7.4. SECONDARY DEVERBATIVES

In addition to the inherited denominative and primary **-ye/o-* formations, it is also clear that this suffix could be used to form verbs from other verbal stems. In this deverbative function, the capacity arose for heavy sequences to be found preceding the suffix.

7.4.1. Verbs Built from Reduplicated Formations

We find a number of examples formed with reduplication. Usually, it is not immediately clear whether a **-ye/o-* deverbative was formed from an existing reduplicated formation, or whether a pre-existing **-ye/o-* verb has undergone reduplication, or whether in some cases we are dealing with a simultaneous process of reduplication and suffixation. This being the case, it is a serious issue to try to establish the chronology of formation, where possible.

In these formations the reduplication results in a polysyllabic stem. We shall see that there is no indication that polysyllabic stems had any kind of special status for Sievers’ Law at the time when any of these verbs were formed.

7.4.1.1. ἰάλλω

The **-ye/o-* suffix is added to a verbal stem ending in a syllabic liquid in ἰάλλω ‘stretch out, send out; flee’ (Hom. etc.) < **si-sl_h-ye/o-* from the same root as Gk ἄλλομαι ‘leap’, Lat. *salīō*, *-īre* (**sel-*; see LIV² 527).¹⁰⁴ On the basis of Ved. *sisarṣi* we may suppose that this formation has been built up from an originally athematic reduplicated present formation with an additional suffix **-ye/o-*. Whatever the chronology of formation might be, this form would have had a root-final syllabic liquid, and so we would expect the suffix form **-ye/o-* rather than **-iye/o-* regardless of the validity of Sievers’ Law.

7.4.1.2. παφλάζω

We find παφλάζω ‘boil, bluster (of the sea etc.)’ < **-b_hl_hd-ye/o-* (with a reduplication which has undergone Grassmann’s Law); cf. OHG *uz-ar-pulzit* ‘gushes forth’.

¹⁰⁴ However, note the reservations of de Vaan regarding the reconstruction of this root: see n. 59.

Also from a *-ye/o- present and apparently from a lengthened grade of the same root are OIr. *ind:láidi* and Latv. *blāžu* (*blāst*) (LIV² 86 s.v. *b^{hl}ed-).

However, the etymology is disputed. According to Tichy (1983:248–52), this represents an onomatopoeic formation with total reduplication reshaped from an original *p^{hl}ag-p^{hl}ag-. Nevertheless, in light of the unreduplicated aor. ἔφλαδον (A.Ch.28) and the noun φλεδών, -όνος ‘talker, babbler’ (A.Ag.1195)—both with a root-final voiced dental, and in the latter case with *e*-vocalism—the structure of the root seems fairly clear. It seems best to reconstruct *-b^{hl}d-ye/o-, but the question remains how the reduplication was structured. The sequence immediately preceding the suffix is light, so this form appears to be consistent with Sievers’ Law. The stem is polysyllabic, but the most we can say is that forms such as this do not offer any reason to suppose that polysyllabic stems in Greek behaved in the same way as they do in Germanic.

7.4.1.3. δαρδάπτω

It is rather more difficult to know what to make of the evidence of δαρδάπτω ‘devour’ (of wild beasts in Il.11.479). We should probably compare δρέπω ‘pluck’ (cf. Ru. *drápat’*, SCr. *dŕpati*), with a dissimilation *dar-darptō < *dŕ-dŕp-ye/o-, perhaps under the influence of δάπτω. But the alternative, as LIV² (104 n. 2) would have it, is to suppose that this is directly cognate with δάπτω with a dissimilation from *dap-dap-ye/o-. Once again the sequence immediately preceding the suffix is light and the polysyllabicity of the stem seems to have no effect.

7.4.1.4. μαρμαίρω

We find a reduplicated *-ye/o- verb in Hom. μαρμαίρω ‘sparkle, gleam’ (see Chapter 6, n. 109). We do not know how old the formation is. It might go back to *mr̥-mr̥H-ye/o- and constitute evidence for the loss of a laryngeal after a syllabic resonant and before *y. Alternatively, given that we find this as a verbal root only in Greek, the form may well be a Greek creation, in which case it may result from the addition of *-ye/o- to an existing reduplicated formation *mar-mar- (< *mr̥-mr̥H-V-). Whatever we reconstruct, the metrical structure of the root should be equivalent, though the chronology of formation would potentially differ considerably.

7.4.1.5. καρκαίρω

The structure of the root in the reduplicated formation καρκαίρω ‘quake’ is not clear. It might be built from the same *seṭ* root as Ved. *ca-kar-ti* ‘make mention of, praise’ (aor. *akāriṣam*), in which case we might suppose a development *kṛ-kṛH-ye/o- > καρκαίρω; for discussion of the putative sound change, see §6.8.1.3. However, the verb only occurs in Homer at Il.20.157 and thereafter in grammarians. The exact meaning is unknown and so we cannot be sure whether the Indo-Iranian material is truly cognate. Furthermore the verb is probably onomatopoeic, and perhaps subject to remodelling in consequence.

7.4.1.6. ἰαύω

In order to explain the survival of the prevocalic diphthong in Hom. ἰαύω ‘stay the night’, it might be plausible either to reconstruct a (reduplicated) **-ye/o-* formation, based on the zero grade of the root **H₂wes-*, i.e. **H₂i-H₂us-ye/o-*, with various supplementary assumptions to explain the apparent vowel reflex of the word-internal laryngeal, or else to reconstruct a full-grade formation **H₂i-H₂ews-ye/o-*, based on a schwebeablauting root. In the latter case, a heavy sequence would certainly precede the **-ye/o-* suffix at an early stage. On the other hand if this verb could be understood as an Aeolicism in the epic tradition, then the retention of the prevocalic diphthong would no longer require or justify the reconstruction of the supposed **-ye/o-* suffix. Therefore the status of this formation lies in considerable doubt. For detailed discussion, see §6.8.2.1.

7.4.1.7. ἰμείρω

It is fairly standard to assume that ἰμείρω ‘desire’ derives from a reduplicated formation with a full-grade root **si-smēr-ye/o-*, from which the noun ἴμερος was back-formed. But Weiss (1998:47ff.) argues convincingly that ἰμείρω should be understood as a denominative **-ye/o-* verb from a noun **siH₂-mer-os* (see further in n. 3).

7.4.1.8. προῖσσομαι

It is conceivable that προῖσσομαι ‘beg, ask for a gift’ conceals a reduplicated formation **si-sik-ye/o-*, but without knowing the root vowel length this is just a possibility. The far more likely analysis is that this is a denominative built from προῖξ, gen. προῖχος (see §7.1.14).

7.4.1.9. δαδύσσομαι

It is unclear whether δαδύσσομαι ‘to be distracted’ has a form of reduplication, or a preverb δα- < δια-. The variant δαιδύσσεσθαι· ἔλκεσθαι ‘be drawn, pulled’ (Hsch.) might be due to contamination with δαῖζω ‘divide in two, cleave asunder’ (see §7.2.1.2).

7.4.1.10. ἐλελίζω

The reduplication in ἐλελίζω ‘cause to shake’ cannot be very old, because the root is **H₁liĝ-* (cf. Ved. *rėjati*, Goth. *laikan* ‘jump’, etc.) and **H₁le-H₁liĝ-ye/o-* should have yielded **elēlizde/o-* (see §7.2.1.2).

7.4.1.11. ἐνίσσω

An example of a deverbative with a possible heavy sequence before **-ye/o-* is ἐνίσσω ‘attack verbally, reproach; maltreat’ (e.g. Il.15.198). It seems clear that there was a root-final labiovelar, since many paradigmatically related forms appear with a root-final -π-. Given that we find a long ī in the reduplicated aorist ἐνένιπε

(Il.15.546), in ῥνῖπᾶπε (e.g. Il.2.245), and the related noun ἐνῖπῆ ‘rebuke, angry threat’ (Il.4.402 etc.), we might legitimately suspect that the ι vowel in ἐνίσσω is long also.

The etymology of these forms is far from clear. Beekes (2010:427 s.v. ἐνῖπῆ) seems to favour the view that ἐνίσσω is a *-ye/o- present based on the same root as ἰάπτω ‘injure, damage; impel, shoot’;¹⁰⁵ such a connection could suggest a root **H₂ek^w*- with ἰάπτω resulting from a reduplicated full-grade formation **H₂i-H₂ek^w-ye/o-*. However, it is clear that ἰάπτω itself cannot represent the direct reflex of such a formation, but must be secondarily formed or re-formed, probably on the basis of the sigmatic aorist or future. It is also worth noting that there are no secure parallels for a full-grade reduplicated *-ye/o- verb in Greek, so the etymology of ἰάπτω is not terribly well supported.¹⁰⁶ Evidence for a root **Hek^w*- might nevertheless exist, if we accepted a connection with ἵψασθαι ‘squeeze, oppress’.

If we supposed that ἐνίσσω was based on a root **H₍₂₎ek^w*-, then it could have been a non-reduplicated *-ye/o- formation with a zero-grade root and a fossilized preverb **eni-*, i.e. **(H₁)eni-H₂k^w-ye/o-*. A reduplicated aorist from the same collocation of preverb and root **eni-H₂k^w-H₂k^w*- could have yielded ῥνῖπᾶπε, which is otherwise difficult to explain. Under this analysis, ἐνίσσω would be an example of a Greek verb with the root shape **H(e)T-* which was an unambiguously zero-grade rather than full-grade formation. Furthermore, if the univerbation of the preverb was of a sufficiently early date, then ἐνίσσω could exemplify the properties of a word-internal (rather than a word-initial) **-HT-* cluster before **γ*. So ἐνίσσω would constitute a serious counterexample to Sievers’ Law, unless we accepted Schindler’s idea that obstruent clusters did not count as heavy sequences for Sievers’ Law (§2.3.4). On the other hand, if the univerbation with the preverb was not of a sufficiently early date, or the word boundary continued to be significant in the grammar even after the collocation of preverb and root became habitual, then we might rather consider ἐνίσσω to illustrate the weight properties of a word-initial cluster **HT-*. As we have seen elsewhere, there is no evidence for Sievers’/Lindeman’s/Edgerton’s Law effects word-initially in Greek, and so this result could be considered consistent with our other observations.

Hackstein (1997:19–46, esp. 36–7, and in Chantraine 1999:1395–6) argues for a different etymology for ἐνίσσω. He suggests that we can find in Homer an ancient sense of the verb ἐνίπτω and cognates ‘say something, pronounce something’, notably in the fut. ἐνίψω at Od.2.137, the aor. ῥνῖπᾶπε at Od.20.17, and the pple ἐνίπτων at Pi.P.4.201. This verb is supposed to result from a univerbation of a preverb **H₁en-* with a reduplicated root *sek^w*- ‘speak, say’: **H₁en-si-sk^w-ye/o-* > ἐνίψω. The future form **H₁en-si-sk^w-se/o-* would yield ἐνίψω. Beside these forms we find a non-reduplicated thematic form **H₁en-sek^w-e/o-* > ἐν(ν)έπε/o-. The aspiration of the putative root **hek^w*- < **sek^w*- may be visible in Lac. ἐφενέποντι ‘impose punishment’ (SEG 12.371.3) < **ep-en-heponti*. The reduplicated present and simple thematic present may be reflected in Latin *insece* and *inquit* respectively. Whatever view we take of the prehistory of these forms, ἐνίψω seems to

¹⁰⁵ However, at p. 574 in the same work, Beekes takes a much more cautious approach.

¹⁰⁶ The same objection might apply to the supposed connection with ἰάσσειν· θυμολύσσειν, δάσσειν ‘be angry, bite’ (Hsch.). In any event, this form is not terribly close to the rest in semantic terms, and an etymological connection is most uncertain.

be a counterexample to Sievers' Law as originally conceived. Again, if we accept Schindler's supposition that sequences of obstruents or **-HT-* sequences were not heavy sequences (see §2.3.4), then ἐνῖσσω would not be a counterexample.

Under Hackstein's (1997) morphological analysis, we have a pattern of double affixation: reduplication with an added suffix **-ye/o-*. We have seen that this is certainly a type of formation which emerges in Greek and does not seem to be an inheritance in any other case. The pertinent question is, therefore: when did this double marking arise and how did it relate to the operation of Sievers' Law? The counterexample presented by ἐνῖσσω might not be intractable, even if we leave aside the possibility that obstruent clusters did not constitute heavy sequences. But it is difficult as yet to see exactly how the chronology might be ascertained.

7.4.2. Verbs Built from Nasal Presents

There is a small but important class of verbs that add the **-ye/o-* suffix to a verbal stem which has already undergone nasal suffixation or infixation.

7.4.2.1. Examples with Light Sequences

It is possible to suppose that ὀτρύνω 'encourage, incite' (Hom.) goes back to **otrun-ye/o-*, since the stem vowel was originally short; cf. Hom. fut. ὀτρύνω. From an etymological point of view we can compare ὀτραλέως 'swiftly, quickly' (Hom.). But this does not provide us with a clear explanation of the structure of the verbal stem. The root of Ved. *tvárate* 'hurry' might be comparable, if we assume that the zero grade of a root **twer-* underwent a metathesis in Greek to give **tru-*, to which a nasal suffix and subsequently a **-ye/o-* suffix could have been attached. However, this still leaves the initial *o-* unexplained (see Beekes 2010:1123). Given the uncertainties, this evidence is difficult to use in reconstructing the earliest behaviour of the semivowels, and we will leave it aside. Furthermore we should note that if the example were very early, and if we expected Schindler's basic syllabification rule to be respected, we might have predicted a syllabification such as **-trwn-ye/o-*.

We find κλίνω 'bend, incline, lean on, sink' beside various nasal present forms in other languages, e.g. Lat. *-clīnāre* 'bend', OHG *hlinēn*.¹⁰⁷ Greek shows forms with a short *ι*, e.g. κλίνῃναι, and forms without a nasal in the root, e.g. perf. κέκλιμαι, συγκλίτης (see Beekes 2010:716–17). These suggest that the root was **kley-/*kli-* and that κλίνω represents an inherited nasal suffixed present with a **-ye/o-* suffix added within Greek.

The root structure of χρίνω 'separate, choose' stands in considerable doubt. Many cognate forms, such as χριτός 'chosen' or aor. pass. χριθῆναι, fail to show a nasal, and this makes it reasonable to suppose that χρίνω derives from a nasal

¹⁰⁷ LIV² (332–4) reconstructs an Indo-European present stem **k_l-ne/n-y-* from the root **kley-*, which was reanalysed in Greek to give a stem **klin-*. However, the proposed analogical development seems a little unlikely. It might be better to assume a nasal suffix here.

present; cf. Lat. *cernō* ‘select, discern’, MW *go-grynu-* ‘sieve’. But the nasal has clearly spread to other stem forms; cf. aor. ἔχρῃναι. The lengthened root vowel in the present may suggest a secondarily derived *-ye/o- formation.

However, the root shape in Indo-European terms is unclear. Among other evidence, the Latin perfect *crēvī* has been taken to indicate a root containing a laryngeal **kreH₁-(i)-* (see LIV² 366–7). Under such assumptions, the putative nasal present **kri-n-(H₁)-*, which was the basis of formation for χρῖνω, would have to be built from a metathesized zero-grade root **kriH₁-* < **krH₁i-*.

But all this is rather hard to accept in view of the word equation *κριτός* = Lat. *certus* ‘decided, certain’ < **kri-to-s*, since this must be built from a root without any laryngeal: **kriH₁-* would yield forms with long **ī* in Latin and Greek, while **krH₁i-* should show the outcomes of a syllabic liquid. It might be possible to argue that all forms with a root **kri-* are secondarily abstracted from the nasal present, as LIV² supposes, but this is far from certain.

So we do not know whether to reconstruct **kri-n-ye/o-* or **kri-n-H₁-ye/o-*. In the latter case it is not clear why we do not find a reflex **krineō*, unless we could legitimately expect Pinault’s rule to apply to such a formation, in spite of its uniquely Greek character. In such a case it would appear that Pinault’s rule was a sort of constraint which could continue to apply in the history of Greek.

The long vowel in *πλῦνω* ‘wash, clean’, contrasting with a short vowel elsewhere (e.g. fut. *πλῦνέω*), would be compatible with supposing a *-ye/o- formation. This must have been formed from a nasal present, in view of the fact that the root is clearly **plew-/ *plu-* (cf. *πλέω* < **plew-ō*, Hom. ἔκ-πλῡ-το-ς ‘washed out’); *πλῦνω* can come from **plu-n-ye/o-*. Comparative evidence for a nasal present from this root can be found in Arm. *lua-na-m* ‘wash, bathe’.

The alternation of length in *σίνουμαι* ‘rob, pillage, damage’ (Hom. etc.) beside *σῖνος* ‘damage, disaster’ (A., Hdt., etc.) would be consistent with a *-ye/o- present **sin-ye/o-*. It has been supposed that a nasal suffix formation **si-n-ye/o-* is likely (see Chantraine 1999:1005–6); however, a morphological analysis is perhaps premature, given that the *-n-* is found everywhere in this word family in Greek, and we cannot be certain of the Indo-European origins of the root: certain cognates outside Greek are lacking (see Beekes 2010:1334–5).

It is clear that *φαίνω* ‘show, make visible; appear’ is a secondary deverbative in Greek ultimately built up from the root **b^heH₂-* (cf. Ved. *bhāti*). The creation of the Greek root *φαν-* seems to presuppose a stage with a nasal infix present to which a *-ye/o- suffix has been added. But it is unclear whether this involved a stage **b^h-n-H₂-ye/o-* or whether the verb was built from the spreading root *φαν-* at a later stage (see §6.8.1.3 p. 277).

There is a possibility that *ἰαίνω* ‘make warm; delight; heal’ is deverbative, formed with the *-ye/o- suffix from a nasal infix present **His-ne-H₂-ti* (> Ved. *iṣṇāti* ‘impart movement to, give an impulse, send’). If this analysis were correct, then *ἰαίνω* would form a word equation with Ved. *iṣāyati* ‘prosper, is strong’ (see Schrijver 1999:127–34 and §6.8.1.3 p. 275). It is important to note that this would be the *only* example of a secondary deverbative in Greek for which there is an external word equation. However, this equation does not seem terribly convincing in semantic terms. It might be better to follow García Ramón (1986:504–5) in seeing *ἰαίνω* as a denominative.

7.4.2.2. Examples with Potential Heavy Sequences

A heavy sequence is commonly reconstructed for κλάζω ‘scream, clash, shout’. A form **klang-yō* is reconstructed for the present stem on the basis of the nasal infix found in the aor. ἔκλαγξα (e.g. Il.1.46). But the picture is not straightforward because there is also a root without a nasal infix in the second aor. ἔκλαγον (*h.Pan.*14 etc.) and Doric κέκλαξα. We cannot in principle know which stem the present stem used. Tichy (1983:41ff.) argues that there are three independent onomatopoeic stems κλάγ-, κλάγ-, and κλαγγ- from which various formations built a complete paradigm. She derives the **-ye/o-* present from the stem κλαγ- directly.

Beekes (2010:708), on the other hand, takes seriously the possibility that κλάζω could have been built with an onomatopoeic -ζω suffix (cf. ὀλούζω ‘cry aloud’ etc.), from an original nasal infix present.

The same arguments may hold for πλάζω ‘turn aside, repel, bewilder’ (Hom. etc.). On the basis of the sigmatic aor. ἔπλαγξα (Hom.), and other Greek forms containing a nasal, a form **plang-yō* has traditionally been assumed, and comparisons with Lat. *plangō* ‘strike’ have naturally been drawn. Such a conclusion is not necessarily secure if we accept Tichy’s (1983:53–4) argument that Greek reflects a cross-linguistically supported root **plāg-*. Even though we may not be inclined to follow Tichy in reconstructing a root **plag-* for Indo-European, it would not rule out such a root in a purely Greek context.

Even if we were to suppose that the present stem forms were based on stems **klang-* and **plang-*, we could not be sure that the **-ye/o-* suffix was involved. There is very little evidence that any of these forms with both nasal infixation and **-ye/o-* suffixation were inherited, so putative formations like **klang-yō* would have to be secondary present formations rebuilt from the other stem forms. There are very many instances where we know that present stems resembling the outcomes of **-ye/o-* were built from the aorist analogically and without the involvement of **-ye/o-*; we are not inclined to take such forms as evidence for or against Sievers’ Law.

Another onomatopoeic verb γλάζω ‘sing aloud (μέλος)’ (Pi.Fr.97) might be argued to go back to **glang-ye/o-*; cf. Hsch. γλαγγάζει· πτερύσσεται, κέκραγε ‘flap wings, shriek’. However, the evidence is far from unambiguous. The meaning and etymology of γλάζω would have to be reconsidered if Wilamowitz is correct in reading μέλι for μέλος here (see Beekes 2010:274). Even if the meaning were certain, then this looks very much like a variant of κλάζω (see Chantraine 1999:225), and, as such, it could not be taken as independent evidence.

7.4.3. Conclusions on Deverbatives

It should be clear from this short overview that there are not a great many **-ye/o-* deverbatives, and we do not have any strong evidence to suggest that such formations belong to the earliest periods. Only ἰαίνω showed a potential external word equation, and the lack of semantic agreement limits the confidence which we can place in it. Most examples show a light sequence immediately preceding the **-ye/o-* suffix. On the whole, the few examples with potentially heavy sequences are susceptible to other explanations. The evidence of ἐνίσσω is difficult to use: on

the one hand, if the verb is analysed as a primary **-ye/o-* formation, then it is difficult to know whether the **HT-* cluster should be considered as exemplifying word-internal or word-initial behaviour; on the other hand, if it is a deverbative formation, then an assessment of the chronology of its formation becomes very important in determining the significance of its testimony. Given our inability to confidently reconstruct any other Greek example of a secondary deverbative in **-ye/o-* for Indo-European itself, then in all likelihood we would have to suppose that ἐνίσσω was formed within Greek, though at which precise stage we do not know.

7.5. CONCLUSIONS ON VERBAL FORMATIONS

We began our investigation of the **-ye/o-* verbal formations with the observation that the suffix was invariant and did not exhibit the kind of syllabicity alternations we would have expected had Sievers' Law been a feature of early Greek phonology. Furthermore, it was difficult to see why a suffix variant **-iye/o-* would have been eliminated, if it once existed.

One possibility was to suppose that Sievers' Law did not apply in Greek. This is at odds with the alternation observed in nominal formations, and we decided that other explanations ought to be entertained before we reached such a conclusion.

Another possibility would have been to adopt Schindler's proposal that Sievers' Law only applied in final syllables; category-specific analogical levelling in formations where a semivowel fell in the final syllable (in at least one part of the paradigm) would then determine whether Sievers' Law effects could be observed in any given morphological category. We judged this idea more or less untestable, since this proposition offers such a degree of explanatory power that no conceivable configuration of facts would be ruled out. Of course, this did not exclude the possibility that the idea might be correct, but the principled approach was to pursue testable hypotheses before exploiting an explanatory scheme of this kind.

It might have been possible to suppose that Sievers' Law was originally confined to certain morphological categories in the first instance, rather than being a general phonological rule in the grammar. It could then be stipulated that Sievers' Law simply did not apply to the verbal suffix (in spite of the Germanic evidence). Such a proposition might have been supported by the failure to observe any alternation in the Vedic *-ya-* suffix. But we showed that the Vedic facts are consistent with the idea that Sievers' Law applied, in principle, across the board; there were a number of phonological configurations whose testimony was difficult to interpret, but it was certainly possible and reasonable to take the view that, at least as far as the Vedic evidence was concerned, the phonological conditions for the emergence of an **-iye/o-* variant of the suffix simply did not arise at an early enough stage.

This being the case, we decided to investigate in detail the morphotactic and phonotactic properties of the verbal **-ye/o-* suffix in Greek, to test the possibility that at an early stage only light sequences preceded the suffix. This would account for the invariant nature of the suffix and the absence of any trace of a verbal suffix **-iye/o-* in Greek.

We removed from consideration as many analogical formations as we could identify, etymologically obscure examples, formations with suffixes which were secondarily abstracted from the reflexes of **-ye/o-* verbs, and examples with ambiguous phonology. We then looked at denominative, primary, and deverbative **-ye/o-* formations from a morphological, phonological, and semantic perspective. We argued that it was possible to identify some examples as innovations on semantic, morphological, or etymological grounds. Only the remaining core of evidence could be potentially useful in investigating the behaviour of the earliest **-ye/o-* verbs, and aside from examples where there is comparative evidence, we still cannot be very sure in any given case how old a **-ye/o-* formation may be.

We found that the denominative and deverbative formations show the most potential for generating heavy sequences before the suffix, owing to the large number of ways in which morphological elements can be combined. However, at the same time, the ongoing nature of these processes of formation and the lack of comparative evidence mean that it is very hard to assess the seriousness of individual cases of heavy sequences preceding **y*. In a large number of instances it could be shown that counterexamples to Sievers' Law were likely to belong to comparatively late stages of development, rather than being sufficiently archaic to furnish useful evidence as to the behaviour of semivowels in Indo-European or at the earliest stage in Greek.

We saw that the primary **-ye/o-* verbs conform to stricter patterns of formation. Usually the verbal root occurs in the zero grade, and for almost all Indo-European root shapes the result is a light sequence before the suffix. Only zero-grade roots of the shape **CRHC-* could have constituted a heavy sequence, and only on certain assumptions about the way Sievers' Law functioned. We could not reconstruct any Indo-European examples of such a formation, and there was only one purely Greek example where it looked as though the root itself could have been inherited (*ἰρᾶσσω*). The importance which we should attribute to this example is limited by the purely Greek nature of the formation, the ongoing productivity of the **-ye/o-* suffix, and the lack of any comparative evidence for formations of this type.

We established that although there was a very small class of full-grade primary **-ye/o-* verbs in Indo-European, and the category underwent a significant expansion within Greek, these formations were confined to a delimited set of root shapes, and, as a consequence of the root shapes involved, no heavy sequences resulted before the suffix at an early stage.

These observations allow for the possibility that Sievers' Law could have applied as a general phonological rule at the earliest stage, rather than being category-specific. We can understand the absence of any evidence for a verbal suffixal variant **-iye/o-* because the phonological conditions under which this variant might have been expected to arise did not occur at the earliest stage, largely, but not entirely, as a result of the morphotactic properties of the suffix in its various functions.

Conclusions

8.1. INHERITED PATTERNS

We have seen in this study that there is substantial evidence in three Indo-European language families for an alternation between **i* and **y* which was to some extent rule-governed. This is not surprising when it comes to obvious shared tendencies such as the vocalization of semivowels between non-syllabic segments, the occurrence of non-syllabic semivowels between syllabic segments, or the treatment of semivowels as non-syllabic in the second part of diphthongs. But in the post-consonantal prevocalic environment, the matter was never so straightforward. The evidence of Germanic seemed to offer the prospect of reconstructing for the parent language a rule-governed alternation between **i* and **y* in this position, determined by the weight of the preceding sequence, and this behaviour was matched closely by the properties of post-consonantal prevocalic semivowels in the text of the Rigveda. However, there were also substantial differences in the rules operating in each language, which made comparison problematical when it came to the details, and difficulties of methodology which made it unclear whether comparison and reconstruction were desirable even in principle. The need for additional comparative data was clear, and I have argued that the Greek evidence provides a useful additional basis of comparison.

8.2. THE EVIDENCE FOR SIEVERS' LAW IN GREEK

The positive evidence for Sievers' Law alternations comes from only a few Greek morphological categories: the primary comparatives in **-yos-/*-yon-* and the nominals in **-ye/o-*, **-y-e/o-*, and **-tye/o-*.

The primary comparatives show clear evidence for a Sievers' Law distribution of suffix alternants. There is a strong tendency to find the outcomes of the monosyllabic **-yos-* or **-yon-* suffix variants after sequences that can reasonably be considered light from the point of view of Sievers' Law: the examples include βάσσων, βράσσων, πάσσων, θάσσων (if from **d^hh₂g^h-yos-* rather than **d^hH₂g^h-yos-*), ἐλάσσων, κρέσσων/χάρτων/χάρρων, μέζων (possibly from **megH₂-yos-* by Pinault's rule), and with less certainty ὀλίζων.

On the other hand, after sequences which could reasonably be regarded as heavy from the point of view of Sievers' Law, there is a strong tendency to find the outcomes of the disyllabic suffix variants **-iyos-* or **-iyon-*: we find ῥῑδίων, κῡδίων,

ῥίγιον, κέρδιον, and ἀλγίων; with more caution we might mention ἐγγίων, ῥήϊον, πόρσιον, and ἐχθίων (though this could only be used at all if the connection with Lat. *exterus*, *extra* is rejected).

The overall pattern is most economically explained if we accept that Sievers' Law operated in this category at some prehistoric stage in Greek. But this explanation requires additional stipulations; since βραδίων and φιλίων have the disyllabic comparative suffix, in spite of having light sequences in the root, we must suppose that the **-iyos-/*-iyon-* suffix spread secondarily in these cases. This stipulation is a small price to pay, given that we know that **-iyos-/*-iyon-* spread during the history of Greek; cf. ταχίων beside θάσσω.

The evidence of a good many other comparative formations cannot be taken into account because they are likely to have been built or rebuilt secondarily, e.g. ταχίων, παχίων, βελτίων, αἰσχίων, and ᾄσσω. An original comparative **āson* might be attested indirectly by ᾄσιστα, but we cannot be sure whether this comes from **H₂emg^h-yos-* with a heavy root or from **H₂mg^h-yos-* with a light root.

Much of the material cannot be used with any confidence owing to ambiguities of chronology (ἔσσω/ῥήττων/ῥήσσω, γλύσσω/γλυκίων, and *ka-zo-e/καχίων*), segmentation (ὕψίων), or orthography (*ka-zo-e*, *a-ro₂-a₂*, *me-u-jo*, and *me-wi-jo*), or to uncertainties in history and etymology (θρασίων and καλλίων).

We find the suffixes **-ye/o-*, **-y-e/o-*, and **-tye/o-* after light sequences in the great majority of instances—among examples with word equations or near word equations: ἄλλος, πεζός, μέσσω, κοίρανος (← **kor-ye/o-*), **aossos* (implied by ἄοσσέω and ἄοσσητήρ), ὀπίσσω, ὄνειρος, and φύλλον; among forms where there is comparative evidence for the root, if not the collocation of root and suffix: φελλός, σειρή (with the operation of Pinault's rule), θαλλός, μελάν-οσσω, κνυζόν, ῥπειρος, πελλός, πόσσω, τόσσω, πρόσσω, ἔπισσαι, and with much less certainty σκελλός, ἄειρον, and ψύλλος; and among the examples without any comparative support: ξύνός, σπείρον, κύπειρον, βυσσός, περισσός, μέτασσαι, and with much less certainty κάρταλλος and αἰγείρος, and conceivably φοινός, χῶρος, and κυλλός.

The only convincing example showing the reflex of a heavy sequence followed by **y* is λοῦσσω.

This distributional skew in the metrical structures which precede **-ye/o-*, **-y-e/o-*, and **-tye/o-* is difficult to explain without accepting Sievers' Law. But we can only accept Sievers' Law in these categories if an alternative explanation is found for λοῦσσω. We argued that this form could be understood as arising from a devocalization of post-consonantal prevocalic **i* before a morpheme boundary—a process which finds good parallels within Greek—with the additional stipulation that this occurred after Sievers' Law ceased to function. Explaining away this individual exception, while letting the rest of the evidence stand, risks begging the question. But, in my view, the overall pattern in the evidence requires explanation, and this stipulation is justified by the simplification in our understanding of the overall pattern produced by positing Sievers' Law.

We found no convincing evidence for Sievers' Law alternation among the **-ya* feminines, and indeed there are a considerable number of apparent counterexamples. We argued that it is difficult to use the evidence of this category to establish the rules governing the early distribution of **i* and **y*. Not all parts of the **-ya*

feminine paradigm would originally have fallen under the scope of Sievers' Law. After the change of $*-iH_2$ to $*-ya$ in almost all instances of the nominative singular, there would have been a very real possibility of levelling $*y$ throughout the paradigm, even after heavy sequences.

The very large class of $*-ye/o-$ verbs fail to show any trace of alternation between $*i$ and $*y$. However, it was concluded that this need not be due to any insensitivity to the conditions of Sievers' Law. But rather there were morphological constraints on the primary formation which meant that heavy sequences did not arise before the suffix at a sufficiently early stage. We were able to use a variety of criteria to understand better the chronology of denominative, primary, and deverbative formations, and in so doing we were able to identify as late a large number of potential counterexamples to Sievers' Law among the $*-ye/o-$ verbs.

8.3. RELATIVE CHRONOLOGY

We found that any inherited distribution of semivowel syllabicity would have been subject to a great many disruptive influences. These had the effect of obscuring evidence for Sievers' Law in Greek, but also provided a certain amount of evidence as to the chronology of the breakdown of this inherited rule.

8.3.1. Pinault's Rule

We have seen that there is a good deal of evidence for the deletion of laryngeals in a word-internal $*-CH-$ cluster before $*y$ (Pinault's rule). It is difficult to know whether such sequences were light for the purposes of Sievers' Law (allowing this configuration to arise in the first place), or the relative chronology was such that the outputs of Pinault's rule were inputs to Sievers' Law.

Examples of this kind of deletion include εἶρω (< $werH_1-ye/o-$, cf. Hitt. $weriye/a-$), σειρή (< $*twerH-ye/o-$ or $*d^hwerH-ye/o-$), τείρω (< $*terH_1-ye/o-$), σκέλλομαι (< $*skelH_1-ye/o-$), Hsch. τέννει < $*tenH-ye/o-$ (though the Vedic evidence suggests that there might have been an $aniṭ$ root variant), with less certainty κυλλός (if from $*k^w ol(H_1)-ye/o-$), Hsch. ἄειρον < $*n-werH_1-ye/o-$, τέλλω (unless it goes back to a thematized nasal present $*tel-n-H_2-e/o-$, $*k^wel-ne/o-$, or $*k^wel-n-H_1-e/o-$), perhaps μασάομαι (if extended from $*mat^h-ye/o-$ and in turn based on a laryngeal-final root), and conceivably ρεῖνω, though the root structure is highly uncertain.

We noted the difficulty in using the evidence of $*aossos$ (implied by ἀοσσέω) < $*sm-sok^w y-e/o-$ < $*sm-sok^w Hy-e/o-$, because there are several possible interpretations of its history of formation. Similarly difficult is the evidence of the comparative μέζων ← $*meg-yos-$ perhaps from $*megH_2-yos-$; it is possible that the $*H_2$ in $*megH_2$ was suffixal.

Examples like ἄρω, γέλω, and γηράω, where we appear to see a vowel reflex from the laryngeal, can be understood as having the final vowel in the stem analogically reintroduced, from either other aspect stems or derived nominals.

The Greek examples of the putative essive suffix $*-H_1ye/o-$, such as $\varthetaαρσέω$, $\acute{\alpha}\nu\thetaέω$, and $\acute{\rho}\iotaγέω$, all have other, better explanations.

8.3.2. The Loss of Intervocalic Laryngeals

We saw that it is not possible to reliably determine the effects of the loss of intervocalic laryngeals on the continuation or breakdown of Sievers' Law in Greek. Only a very small number of categories can theoretically give us evidence on the issue, and the interpretation of that evidence depends to a great extent on our starting assumptions. Furthermore, in the potentially crucial optative category, there has been a great deal of remodelling, such that the original situation is obscured. It is important to note that the loss of intervocalic laryngeals did not affect the survival of substantial traces of Sievers' Law in Vedic and the synchronic continuation of Sievers' Law in Germanic. Therefore, we cannot automatically assume that the same change should have had drastic effects in Greek.

8.3.3. Rix's Law

If the Elean superlative $\acute{\alpha}\sigma\iota\sigma\tau\alpha$ contains a resegmented stem $\acute{\alpha}\sigma-$ from the expected comparative $*\acute{\alpha}\sigma\omicron\nu$ ($< *H_2\eta g^h-yos-$), then it may provide an indication that Sievers' Law no longer functioned after the operation of Rix's Law, and this would be relatively easy to reconcile with the rest of the Greek evidence.

If $\acute{\alpha}\lambda\sigma\omicron\varsigma$ is cognate with ἄλτις and goes back to $*alt-yo-s$, then it looks like a counterexample to Sievers' Law. On the other hand, if the root were inherited and very old, then it could equally well represent the outcome of a root $*H_1t-$, with the application of Rix's Law.

8.3.4. The Development of $*-iH_2$ to $*-ya$

A large number of intractable counterexamples to Sievers' Law were created by the Greek change of $*-iH_2$ to $*-ya$, e.g. $\omicron\acute{\upsilon}\sigma\alpha < *ont-ya < *H_1s-ont-iH_2$, $\beta\eta\sigma\sigma\alpha$ probably $< *g^w\acute{a}t^h-ya < *g^weH_2d^h-iH_2$, $\pi\acute{\alpha}\sigma\alpha < *pant-ya < *-iH_2$. It seems impossible to avoid the conclusion that Sievers' Law was not operative as a general phonological rule in the grammar at the point in time when this change took place.

8.3.5. The Breakdown of Inherited Syllabification Rules

At a certain stage in Greek the inherited rules governing the syllabification of sequences involving inter-consonantal resonants underwent a change. This stage may have been reached by the time secondary $*y$ developed in examples such as $\acute{\alpha}\rho\omicron\upsilon\rho\alpha < *arowrya$ ($< *-iH_2$). We fail to find the expected syllabification of the resonants in $\acute{\epsilon}\lambda\acute{\alpha}\nu\omega$ (insofar as it comes from $*elawn\eta\delta$ rather than $*elawn\eta\delta$), $\varphi\alpha\epsilon\acute{\iota}\nu\omega$ (if from $*p^ha-wes-n-y\delta$), $\acute{\epsilon}\chi\rho\alpha\iota\sigma\mu\epsilon$ (if from $*e-k^h raysm-ye/o-$), and perhaps

even οἰκτίζω (if somehow this derives from **oyktr-ye/o-*). Insofar as such processes created counterexamples to Sievers' Law, it seems that Sievers' Law did not function as a general phonological rule at this stage.

8.3.6. The Devocalization of **i*

The continuation of Sievers' Law was threatened by the creation of new instances of **y* from a very early stage.

We saw a good deal of evidence for the devocalization of post-consonantal prevocalic **i* when it immediately preceded a morpheme boundary, and the examples are of various degrees of probable antiquity. Indo-European **méð^hy-os* (> Gk μέσος) may well represent the thematization of an old locative in **-i* with devocalization of the semivowel (though we cannot be sure of this). Most of the examples are uniquely Greek, but πόσος (< **k^wotyos* < **k^woti* + *-e/o-*) and Myc. *to-so/τόσ(σ)ος* (< **toty-o-s* < **toti-* + *-e/o-*) seem likely to be old. Other examples arise out of uniquely Greek morphological collocations, such as the probably pre-Mycenaean change giving τήμερον/σήμερον from **ki* + **āmeron*, and αἰετός < **awyetos* < **H₂ewi-* + **-eto-*.

Clearly, this devocalization was never obligatory; cf. αὔρι-ον < **aus-r-i-* + *-e/o-*, ἀντί-ος < ἀντί + **-e/o-*, etc. It is not clear whether there were chronological limits on the process, or whether analogy intervened in some cases, or whether the rule was simply not a regular change.

This process cannot be characterized as a 'converse of Sievers' Law': the morphological and phonological conditions for the process are very different from those found in the converse of Sievers' Law in Germanic, and, in a few instances, counterexamples to Sievers' Law were generated, i.e. λοῦσσον (< **lowky-e/o-* < **lowk-i-* + *e/o-*) and perhaps also in the case of ὥον (if from **ōwyōn* < **ōwi-* + *e/o-*). The most economical solution would be to suppose that Sievers' Law no longer operated as a general phonological rule in Greek at the stage when these particular examples arose.

In addition to these early processes, there were also some dialect-specific devocalizations of **i* in Lesbian, Thessalian, and apparently in Mycenaean. Given everything else we know about the chronology of the breakdown of Sievers' Law, these are likely to have occurred too late to have interacted with Sievers' Law. Similarly, assibilation in South Greek dialects is unlikely to throw any light on the early behaviour of semivowels.

8.3.7. The Vocalization of Syllabic Liquids

It is not inconsistent with anything else we know to suppose that at least some instances of syllabic liquids survived until after the breakdown of Sievers' Law. With this reasonable assumption, examples like Myc. *wo-ze*, κάρτ(τ)ων, and Dor. κάρρων (< **kart-yōn* < **krt-yōn*) would not constitute persuasive counterexamples to Sievers' Law, since they would have violated its conditions only at a relatively late stage in the history of Greek.

8.4. THE SCOPE OF SIEVERS' LAW

During this investigation various questions have arisen as to the nature and scope of the rules governing the distribution of syllabic and non-syllabic semivowels. It was not always entirely clear what exactly would have constituted heavy and light sequences at the earliest stage. The status of polysyllabic stems was in doubt. There was conflicting evidence about the applicability in word-initial contexts of the rules which operated word-internally. The question arose as to whether Sievers' Law ought to be reformulated as a rule applying only to final syllables. The possibility was put forward that, rather than having a complementary distribution of allophones **i* and **y*, the only configurations avoided in Indo-European were those involving a heavy sequence followed by **y*. Clearly, these issues are important for our understanding of the rules governing semivowel syllabicity, but also more generally for our reconstruction of the Indo-European phonological system.

8.4.1. The Weight of Obstruent Clusters

One of the ongoing concerns of this study has been to consider the properties of obstruent clusters preceding **y*. On the basis of the Vedic data, Schindler (1977) argued that a sequence **-TT-* or **-HT-* was light for Sievers' Law. We suggested that the Vedic data are not sufficient to support such a conclusion, for Indo-European at any rate, because none of the pertinent examples can be reconstructed for the parent language. There is no evidence for this in Germanic; indeed, if this hypothesis were correct, then *sōkeiþ* (< **sāgijīþ* < **seH₂g-īye-ti*), one of the stock examples of Sievers' Law and one of the likely inherited examples, would have to be regarded as a secondary innovation.

In Greek we have seen that some of the evidence potentially relevant to this question is of a rather ambiguous nature. Although *αὔξομαι* could go back to **H₂uks-ye/o-*, there is no direct evidence that it involves the **-ye/o-* suffix. Although it is possible that *ἀνάσσω* goes back to **wanakt-ye/o-*, it could equally be derived from the simpler stem **wanak-*. The evidence of *ὠψίων* cannot be used, because we cannot know whether the *i*-vowel belongs to the suffix or the stem.

We have also seen that a great many potentially relevant examples are better seen as relatively late Greek innovations, on phonological grounds (e.g. *πλήσσω*, Hom. *ῥήσσοντες*, *πράσσω*, and *πήσσω*), on morphological grounds (e.g. *ἀμβλυόσσω*, *ἀγρώσσω*, and *δρυφάσσω*), on semantic grounds (e.g. *φρίσσω*), or on the basis of dialectal considerations (*διζός* and *τριζός*).

Depending on our view of its origin, *πτώσσω* presents problems of a semantic, morphological, or etymological nature, and its antiquity is in serious doubt. For semantic reasons it seems unlikely that *πτήσσω* represents an ancient **-ye/o-* verb. Furthermore, there are reasons to believe that the root-final velar in this family of words is a relatively recent addition.

The early character of *ἐνίσσω* is in doubt on morphological grounds, if it reflects a deverbative **H₁en-si-sk^w-ye/o-*. On the other hand, if it goes back to primary (*H₁*)*eni-H₂k^w-ye/o-*, then it is unclear whether **y* is in a word-initial or a word-internal consonant cluster; in the former case, the failure to find syllabic **i* would be consistent with our other observations.

There are chronological issues in understanding the contribution of $\mu\alpha\lambda\acute{\alpha}\sigma\sigma\omega$; if it was formed very early from a root $*m_lH_2k-$, then it would be relevant to the question, but if this was formed at a later stage from the adjectival stem $*malak-$, then it would not.

Among the $*-ye/o-$ verbs we found only one reasonably reliable example formed with a potentially inherited root (or extended root) of the shape $*CRHC-$: $\vartheta\acute{\rho}\acute{\alpha}\sigma\sigma\omega$ could be from $*d^h_rH_2g^h-ye/o-$; however, the root is only weakly supported outside Greek, the verbal formation itself is only found in Greek, and there are no solid parallels for inherited $*-ye/o-$ verbs built from roots of this shape.

Cretan $\pi\rho\acute{\alpha}\delta\delta\omega$ might be a real $*-ye/o-$ verb and go back to $*p_rH_2g-ye/o-$, but this root cannot be reconstructed for Indo-European; the laryngeal and the final velar may be root extensions added during the history of Greek.

It is worth noting that if we assume that $*-HC-$ clusters were light for the purposes of Sievers' Law in Indo-European, then three of the best examples of syllabic semivowels conforming to the conditions of Sievers' Law in Greek would have to be counted as secondary: $\eta\delta\acute{\iota}\omega\nu \leftarrow *sweH_2d-iyos-$; $\rho\acute{\iota}\gamma\iota\omega\nu \leftarrow *sriHg-iyos-$ (unless we reconstruct long $*\bar{i}$ for Indo-European and it is from $*sr\bar{i}g-iyos-$); and $\chi\bar{u}\delta\acute{\iota}\omega\nu \leftarrow *kuHd-iyos-$ (assuming that it is not a replacement for $*kewd-iyos-$).

We also find an obstruent cluster with the disyllabic primary comparative suffix in $\varepsilon\chi\theta\acute{\iota}\omega\nu$, but this example can only be used with a great deal of caution, because the etymology is terribly uncertain, and only has any relevance here if the putative connection with Lat. *exterus*, *extra* is rejected. If Dunkel (1982:53–5) was right to see $\bar{u}\pi\tau\iota\omicron\varsigma$ as involving the disyllabic alternant of the unproductive $*-tye/o-$ suffix, then this would also require an obstruent cluster to act as a heavy sequence.

Overall, there is very little reliable evidence for the idea that obstruent clusters were light for Sievers' Law in Greek. The only reasonably plausible examples are $\vartheta\acute{\rho}\acute{\alpha}\sigma\sigma\omega$ and $\pi\rho\acute{\alpha}\delta\delta\omega$; but, on balance, it is unlikely that these go back to a very early period and so the confidence which can be placed in their testimony is limited. There are several Greek examples which speak in favour of treating obstruent clusters as heavy sequences. None of them show word equations outside Greek and so we cannot be totally confident in reconstructing them for Indo-European itself, but at least some of the examples are based on roots that have a very good Indo-European provenance, and stand a better chance of representing the inherited situation than $\vartheta\acute{\rho}\acute{\alpha}\sigma\sigma\omega$ and $\pi\rho\acute{\alpha}\delta\delta\omega$.

8.4.2. The Status of Polysyllabic Stems

It is clear that polysyllabic stems have a special status in Germanic, acting like heavy sequences for the purposes of Sievers' Law. We noted that it seemed unlikely that this phenomenon was very ancient given that the polysyllabic stems in question—at least those continued by Gothic—were not inherited from Indo-European. The special status of polysyllabic stems is not reflected in Vedic. We have seen a good deal of potentially relevant evidence from Greek, and it is worth bringing it together here so that an assessment can be made.

It is very hard to reconstruct polysyllabic stems for a terribly ancient stage on the basis of the Greek evidence. Those that we do find seem to emerge as a

result of phonological changes within the history of Greek or through processes of morphological derivation which are not likely to be inherited.

Greek vocalized word-initial laryngeals before consonants. As a result, new polysyllabic stems were created, and in some cases these preceded phonological configurations to which Sievers' Law could have applied. We never find a syllabic **i* emerging in such circumstances, only ever **y*. The relevant nominal examples are ἐλάσσω ← **H₁lŋg^{wh}-yos-* and ὀλίζων perhaps ← **H₃lig-yos-* (though caution is required, because this is the only example of a primary comparative beside a potentially reconstructible thematic adjective and the antiquity of such comparatives is not clear). Among the **-ye/o-* verbs we find ἀτυζόμενος < **H₂tuǵ-ye/o-*, ὀρύσσω < **H₃ruk-ye/o-*, ἐρέπτομαι < **(H₁)rep-ye/o-* (though this verb cannot be reliably reconstructed for Indo-European), ἀγείρω perhaps < **H₂ger-* (though only Greek uses this root in the verbal system and the full-grade **-ye/o-* formation is hard to reconstruct), and ἀμείρω perhaps < **H₂mer-* (though the root may be an innovation resegmented from ἀμέρδω). In the cases of ἀείρω < **H₂wer-*, ἐγείρω < **H₁ger-*, and ὀκέλλω < **H₃kel-*, there are no parallel **-ye/o-* formations from other languages. Clearly these examples are not inherited as polysyllabic stems from Indo-European. Conceivably, the development of an extra syllable in such forms in Greek disturbed the original rules, but at a minimum we can say that polysyllabic stems did not have a special status for Sievers' Law in Greek at the stage when prothetic vowels of this kind developed.

In some cases **(C)RH_xC-(i)yV-* sequences yielded **(C)ǃ_xRǃ_xC-(i)yV-*. Leaving aside the question of the original weight of such sequences, it is at any rate clear that such a development had the effect of increasing the number of syllables. If the verb μαλάσσω (from μαλαχός) is sufficiently ancient, then it could go back to **m^lH₂k-ye/o-*, if cognate with βλᾶξ. Another possible example of this development, but much less certain, is ταραάσσω. Comparison with θράσσω results in the reconstruction of a zero-grade root **d^hṛH₂g^h-*. But ταραάσσω cannot directly represent the outcome of **d^hṛH₂g^h-ye/o-*, because Grassmann's Law should not have applied; an analogical origin and/or influence from ταραχή seems likely, and the age of the formation stands in some doubt. So, the quality of the evidence is rather poor, but there is no indication that polysyllabic stems of this origin underwent any special developments vis-à-vis Sievers' Law.

We find a large number of denominative verbs where the **-ye/o-* suffix was added to a polysyllabic nominal stem. However, in no case can such a verb be reconstructed for Indo-European: indeed the base forms are difficult to reconstruct also, and in consequence the status of these forms as evidence for the behaviour of polysyllabic stems in an Indo-European context is doubtful. The relevant examples are ἀγγέλλω, αἰκάλλω, αἰόλλω, ἀνάσσω, ἀρπάζω, ἀτασθαλλώ, αὐλίζομαι, βασκαίνω, γεραίρω, δαιδάλλω, ἐλίσσω, ἐπαιγίζω, ἐρίζω, θιάσσω, ἱμάσσω, ἱμείρω, καθαίρω, καμπύλλομαι, κηρύσσω, κινῶρομαι, κωτίλλω, λιταίνω, μειλίσσω, μελάνω, μετ-οκλάζει, μιγαζόμενος, μινῶρομαι, ναυτίλλομαι, ὀπίζομαι, παίζω (< **pawid-ye/o-*), ποικίλλω, πυρέσσω, σκερβόλλω, στρογγύλλω, στωμύλλω, φαρμάσσω, φυλάσσω, χαλέπτω, and χαράσσω.

There are several examples of possibly non-denominative polysyllabic verbal stems whose origins and antiquity are unknown, e.g. ἀμύσσω and ἄϊσσω. Indeed

in the case of ἄσσω I have argued that the semantics are such that an ancient *-ye/o- verb is unlikely. The use we can make of such examples is very limited.

We should consider also the class of reduplicated *-ye/o- verbs, which show polysyllabic verbal stems. We cannot use ἐλελίζω, because, if it comes from a root *H₁liĝ-, then the reduplication cannot be terribly old, since we would expect *H₁le-H₁liĝ-ye/o- to yield *elēlizde/o-. It might be possible to use παφλάζω (< *-bʰl̥d-ye/o- with reduplication), δαρδάρτω (if ← *d̥r-d̥rp-ye/o-), possibly ἐνίσσω (if from *H₁en-si-skʷ-ye/o-). But the pattern of double affixation in these examples seems to be a tendency which emerges in Greek and does not seem to be reconstructible for Indo-European.

This exhausts the Greek evidence for polysyllabic stems preceding post-consonantal prevocalic *y. None of the examples is at all likely to be of Indo-European antiquity.

There is no meaningful Greek evidence for polysyllabic stems preceding post-consonantal prevocalic *i. There is only one category in which examples with *i could conceivably have preserved evidence of Sievers' Law effects: the primary comparative, and no examples are found. Other categories of evidence are not significant for this question: there are no credible examples of verbs in *-iye/o-, feminines in -ια only adopted a phonological structure relevant to Sievers' Law in all parts of the paradigm within the history of Greek, and nominal formations in *-iye/o- are so common and productive that nothing can be deduced from any given example.

From the Greek material it is not possible to adduce evidence of potentially Indo-European antiquity which would serve as direct counterexamples to the proposition that a system once operated in which polysyllabic stems behaved as they do in Germanic. The reason for this is the lack of reconstructible polysyllabic stems. Perhaps the main conclusion we can draw is that, if polysyllabic stems had any kind of special status for Sievers' Law in Indo-European, nothing of the kind is demonstrable from the Greek evidence, and furthermore, since no Indo-European polysyllabic stems collocated with relevant suffixes seem to have survived into Greek, it is difficult to see how such a putative Indo-European rule could have been continued for any length of time in the synchronic grammar of early Greek, even in the unlikely event that it was a feature of the parent language.

8.4.3. Word-initial Alternation?

For *i and *y in Greek there is no convincing evidence that anything like Sievers' Law operated at the beginning of words or across word boundaries.

There are only a handful of potentially inherited word-initial *CiyV- sequences: Myc. *ki-ti-je-si* = [*ktiyensi*], ἐφθιεν or φθίης, χιών, βίη, and ἐβίωv. Only βίη and ἐβίωv showed alternants with word-initial clusters containing *y: ζάει and ζώω. They belong to paradigms with at least one potentially monosyllabic form, and so one might choose to regard these as evidence for Lindeman's Law. But βίη and ἐβίωv also stood in obvious morphophonemic relationships with stem forms having syllabic *i for reasons that have nothing to do with Lindeman's or Edgerton's Law, because of ablaut alternations in the stem and/or configurations prompted by various inflectional endings.

Very little can be deduced from the distribution of **y* in word-initial clusters. We find plenty of examples of word-initial **Cy-* clusters, e.g. Ζεύς < **dyēws*, σεύω < **kyew-*, σέβομαι < **tyeg^w-*, σῆμα 'sign' < **d^hyeH₂-*. Such examples only serve to rule out the idea that Greek could have inherited and perpetuated a general constraint against **Cy-* syllable onsets.

There are no convincing examples of word-initial **TTY-* or **sTy-* clusters. But we do find examples of word-initial **HCy-*, **(C)CHy-*, and **(s)CHTy-* sequences. Examples of word-initial **(s)CHTy-* include βάπτω, δάπτω, κάπτω, στάζω, perhaps ἐμπάζομαι, σκάπτω (if from **skH₂b^h-*), ἄζομαι (if from **(H)yH₂ǵ-ye/o-*), conceivably ὄσσω (if from **d^hH₂g^h-yos-* rather than **d^hng^h-yos-*), possibly μᾶσσω (if from **mH₂k̂-yos-*), and ἔσσω (if from **sH₁k-yos-*). There are very many possible explanations of this outcome, depending on whether we believe that laryngeals were always obstruents, whether even quite complex obstruent clusters counted as light sequences, whether we believe that there was already a prop-vowel of some kind in Indo-European, breaking up the cluster containing the laryngeal, and whether this might have affected the weight of the sequence. Similar considerations apply to the interpretation of examples of word-initial **HT-* sequences before a semivowel, but, in addition, it is usually difficult to rule out the possibility of a word-initial **HeT-* sequence in Greek. In any event, there is no evidence for such potential word-initial sequences triggering a syllabic semivowel **i*; examples from the pertinent Greek categories regularly show the reflexes of **y* rather than **i*: ὄσσομαι (if from **H₃k^w-ye/o-*), ἄζομαι (if from **H₂d-ye/o-*), ὄζω (if from **H₃d-ye/o-*), and ἄπτω (if from **H₂p-ye/o-*). Examples of **(s)CHy-* sequences include σπάω (if from **spH₂-ye/o-*) and δέω (if from **dH₁-ye/o-*), and once again we find evidence for **y* rather than **i*.

There is no reason to suppose that Greek inherited **i*/**y* alternations in word-initial clusters from Indo-European. The only potential motivation for reconstructing such a phenomenon for the parent language lies in the Vedic evidence, and we saw that the original scope and conditions for the alternations preserved in Vedic are very difficult to clarify. Sihler showed that any prospect of understanding how the phonological environment might have conditioned syllabicity alternation is undermined by very general properties governing the distribution of forms of this shape in Vedic metre. Lindeman argued that alternation was confined to monosyllables, but we have suggested that the fact that one particular handful of monosyllabic forms undergo word-initial alternation does not necessarily entitle us to assume that monosyllabicity is intrinsically important. The disyllabic variants of these particular forms appear in formulaic and metrically delimited contexts. Biases in the material may have been imposed by the manner in which these alternants came to be preserved. As a result, it is difficult to know whether word-initial alternations in Vedic were always confined to a small lexically defined class or whether they were more extensive at an earlier stage. We are probably not in a position to know the original conditioning factors that determined which forms underwent variation or the factors that determined the distribution of these alternants.

The evidence of other semivowels and resonants may provide an alternative line of enquiry. But at least as far as **i*/**y* alternation in word-initial clusters is concerned, there is no solid basis for reconstructing this for early Greek or indeed

for Indo-European itself. In turn, this rules out the possibility of positing for early Greek or Indo-European the kind of synchronic analysis that is possible in a Germanic context, where word-initial and word-internal facts can be reconciled by supposing an onset constraint *Cy-. If there ever was an onset constraint *Cy-word-internally at some early stage in Greek or Indo-European, it may have been relaxed or avoided word-initially.

8.4.4. Alternation Confined to Final Syllables?

Schindler (1977) pointed out that, in Vedic, word-internal post-consonantal prevocalic syllabic semivowels are almost completely confined to forms where the semivowel would have fallen in the last syllable of the word in some part of its paradigm (were it not for the vocalization of that semivowel). He argued that Sievers' Law and Lindeman's Law could be unified under the generalization that syllabicity alternation was originally confined to final syllables: in monosyllabic words the first and last syllables are one and the same.

In Greek, also, potentially inherited examples of post-consonantal prevocalic *i only occur in situations where the semivowel would have appeared in the last syllable in some part of the paradigm (the comparatives with nominatives in *-(i)yōn and nominals with nominatives in *-(i)y(-)o-s and perhaps *-t(i)yō-s). Given we never actually find paradigmatic alternations in the syllabicity of semivowels conditioned by whether or not the semivowel fell in the final syllable of the word, it would be necessary under Schindler's scheme to assume a large amount of paradigm levelling in every category to which Sievers' Law once applied.

However, in Greek just as we argued for Vedic, the restriction identified by Schindler can just as easily be seen as a result of the morphological coincidence that the suffixes containing prevocalic semivowels also tend to be the last suffixes added to the stem, so ending up in final syllables in some parts of the paradigm. Consequently, it is difficult to think of a distinct testable prediction which would arise from Schindler's idea which could not be equally well accommodated under Sievers' original proposal.

It is worth noting that the idea of a constraint on the onset of final syllables is a little unusual. It is certainly a more complicated rule than the one originally proposed by Sievers, and there is very little in the way of direct evidence to justify this added complexity. The idea of unifying Lindeman's Law and Sievers' Law might have been attractive if the evidence for Lindeman's Law had been far stronger. As it is, the idea seems, at best, untestable.

8.4.5. Sievers' Law or Seebold's *Anschlußregel*?

We have entertained a number of distinct theories about the ways in which semivowel syllabicity alternations might have functioned, including the possibility of Seebold's *Anschlußregel*: the idea that in Indo-European there was an avoidance of *y after a heavy sequence, but after a light sequence *i and *y could occur freely. This would obviously have implications for our understanding of the structure of the Indo-European phoneme inventory. As evidence, Seebold (1972:340–1) cited

the frequent occurrence of the nominal suffix *-iya-* after a light sequence in the Rigveda; he argued that there were traces of two distinct nominal suffixes which merged after heavy sequences as *-iya-*, but left distinctive reflexes *-iya-* and *-ya-* after light sequences. However, we noted that it is very difficult to find an empirical difference between the traces which would be left by this rule and the outcomes of the putative suffix **-iHo-* or certain types of thematic derivatives from locatives. Certainly, in the context of Greek, the massive productivity of the nominals in **-iye/o-* make it difficult to test any claim other than Seebold's restriction after heavy syllables.

8.5. SIEVERS' LAW IN INDO-EUROPEAN?

We have seen that there is substantial evidence for rule-governed alternation between **i* and **y* in Germanic, Indo-Iranian, and Greek. There are traces reminiscent of such behaviour elsewhere, but no evidence of remotely similar quality or quantity. We have seen that these languages share considerable similarities in the way the syllabicity of a post-consonantal prevocalic semivowel depends on the weight of the preceding sequence. The question then becomes: how likely would it be for a rule such as this to arise independently in three language families?

If we could identify a substantial number of independent examples of similar phenomena among the world's languages, then we might be less inclined to attribute any historical significance to the agreement between Germanic, Indo-Iranian, and Greek. But it is far from clear that there are particularly close parallels for Sievers' Law outside the Indo-European language family. We have already noted that there are Sievers' Law-like patterns in Tocharian which cannot directly reflect an inherited rule. This could be important in establishing whether Sievers' Law, like Osthoff's Law, is the kind of pattern that can emerge again and again independently. However, the fundamental difficulty in using this evidence in this way lies in the fact that Tocharian is an Indo-European language, and if, by any chance, Tocharian had inherited Sievers' Law semivowel syllabicity alternations from Indo-European, then it would be difficult to rule out the possibility that such a pattern could have exercised an influence on the subsequent development of the language, before disappearing itself.

In the absence of clear evidence that a rule of this kind would be likely to arise independently in three separate branches of the family, it seems reasonable to take the evidence for Sievers' Law in Greek, Germanic, and Indo-Iranian as a basis for attributing such a rule to their immediate common ancestor. Whether this means that we should attribute Sievers' Law to the common ancestor of the whole Indo-European language family will obviously depend, in part, on one's view of the structure of the Indo-European family tree.

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